TRYST WITH EDUCATION IN THE TECHNETRONIC SOCIETY

National Lectures Sponsored by the University Grants Commission

V. R. TANEJA

Under the catchy theme of "Tryst with Education in the Technetronic Society", Professor V.R. Taneja in these national lectures, sponsored by U.G.C. and delivered at various universities has analysed the problems and issues of the three major configurations of education—primary education as an unrealised dream, secondary education as a guinea pig and university education embroiled in a five-fold crisis.

After identifying the attributes of a technetronic society, which the author feels is steadily emerging in India, he has essayed the needs, demands and aspirations that "Ecological Approach to Education" will be helpful in building the educational model, suiting the genius of free India. His contribution proved to be so interesting and of such relevance that it seemed it should be made available to all those who are concerned with the future of education in our country. It will serve the twin purpose of informing and inspiring the readers.

These lectures are the quintessence of his dynamic educational thought and practice of four decades. The avid readers are sure to enjoy the flow of his ideas, presented in a lucid style.

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IN THE TECHNETRONIC SOCIETY

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V. R. TANEJA

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Acknowledgment

My first sentiments are of profound gratitude at the great honour the University Grants Commission has done me (in its extreme generosity) by nominating me to deliver these lectures in the universities. With all sense of humility I have accepted this exciting assignment.

Incepted in 1976, the scheme of National Lectures, launched by the U.G.C. with a view to promoting academic standards, has done immense good in enabling the knowledgeable educational thinkers and competent and committed groups of university dons and other interested intellectuals to come together in order to do some pooled and serious thinking on issues and problems of Education.

This monograph on "TRYST WITH EDUCATION IN THE TECHNETRONIC AGE", elaborated and explicated in the light of post-lecture discussions, reinforcing the original material with new angles and points of view, constitutes three thematic lectures, each one seeking to conceptually analyse multi-lateral dimensions of EDUCATION.

Lecture-1

Besides providing the hindsights of yester years and the legacy bequeathed to us by the Britishers, portrays the educational scenario on the advent of Independence and highlights Free India's sharper focus on education and gives the idea of new dispensation.

Lecture-2

Appraises the three major configurations of education, Primary Education as an Unrealised Dream Secondary Education as a GUINEA Pig and University Education, embroiled in five-fold crises. Examines the related trends and issues and postulates the solutions.

Lecture-3

Identifies the attributes of the technetronic society, visualises the educational needs, demands and aspirations of such a society, hypotheses that 'Ecological Approach to Education' is helpful in rebuilding the educational model, suiting the genius of India and stargazes the beacons of hope and promise to take the 'U' turn.

These lectures owe a great deal to those who participated in the discussions and I feel beholden to all. Particularly, I wish to express my sincere sense of appreciation and gratefulness to Dr. S.B. Adaval, Dr. R.R Singh and Dr. B.K. Passi, Professor and Heads, Departments of Education in the Universities of ALLAHABAD, PATNA and INDORE respectively for providing me the necessary facilities, amenities and encouragement in conducting these lectures in their universities with exceptional keenness. I owe, also, great obligation to my Steno, Mr. Bihari Lal Bhat, who not only typed the manuscript efficiently but had the patience to bear with me in completing the write-up by fits and starts.

I hope these lectures, if read by students and teachers of education, will liberalise and leaven their thinking. In these fast changing times educational scene is characterised by rapid changes due to innovations suggested by Science and technology. Education reporting today is very much snapping a photo of a moving object. By the time the shutter is clicked, the picture has changed. The readers of this monograph are, therefore, requested to accept these views in the correct perspective wherewithal of changing education.

V.R. TANEJA

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1. The Perspective

Scenario on the eve of Independence

"TRYST WITH DESTINY"—This historic phrase of Pandit Jawaharlal Nehru orated at the dawn of our Independence forms my inspiration for these national lectures under the main theme of "Tryst with Education in the Technetronic Age." On the midnight of August 15, 1947 India awoke to the blowing of the conch shells and in the midst of unfettered joy as a free country after, of course a hard struggle of more than five decades. The entire nation was palpably excited and the air was full of hilarity. The apex to all this was Pandit Jawaharlal's master-piece of oratory on "Tryst with destiny." "Tryst", in dictionary parlance means "appointment or meeting at a specified time." Pandit Nehru had tryst with the "independence of the country" after three decades of his declaration of "Purna Swaraj." On the same analogy, after having been natured and nurtured in the discipline of education for more than three decades, I have tryst with education in the technetronic era, in which we have recently ushered.

According to Toynbee's "Survey of man's History", mankind has seen 26 distinct civilizations which arose, prospered and passed away during the past three thousand years, beginning from the Sumerian age and Indus Valley Civilization to the Aryan and Muslim Civilization, etc. Presently the humanity is basking in the technetronic age, which is characterised by intense application of science and technology to every aspect of life—political, economic, social—cultural, educational and spiritual. The science and technology if used wisely, is a bonanza for the eradication of all the ills of humanity.

In order to enable us to understand, appreciate and visualise the educational panorama in the technetronic age, we must have the perspective of the educational legacy bequeathed by the British on the eve of Independence. I am not one of those who denounce what the Britishers gave us in the realm of education. I may not be highly appreciative of the total achievement of the British in the field of education but I can not ignore the contribution of Lord Macaulay and several other British M.P.'s who were at pains to arouse the conscience of the British nation in respect of their responsibility to educate the Indians.

In his speech in the House of Commons during the debate on the renewal of the East India Company's Charter in 1833, Lord Macaulay said, "To have found the people sunk in the lowest depths of slavery and superstition, to have so ruled them as to have made them desirous and capable of all the privileges of citizens, would indeed be a title to glory, all our own. The sceptre may pass away from us. Unforeseen accidents may derange our profound schemes of policy. Victory may be inconstant to our arms. But there are triumphs which are followed by no reverse. There is an empire exempt from all natural causes of decay. Those triumphs are the pacific triumphs of reason over barbarism. That empire is the imperishable empire of our arts and our morals, our literature and our laws." This was the vision of a British statesman who, when later came to India as the Law member of the Government of India, infused the administration with his liberal principles. The value of British institutions, to which Macaulay referred was acknowledged by Balgangadhar Tilak, who in 1920 acknowledged, "It is the connection with England and the Education she gave that has given rise to the ambitions that fill our hearts. The British rule is bringing together the different nationalities and races of India so that a united nation may grow together out of it in course of time." The wish and anticipation of Macaulay in 1833 was realised by India in 1947 when India became free. The thinking of the British people in 1792-93 deserves appreciation when they said, "It is the bounden duty of the British Legislators to promote by all just and prudent means the interest and happiness of the inhabitants of India to advancement in useful knowledge and to their religious and moral advancement." One of the directors of the East India Company warned that they had "just lost America from their folly in having allowed them the establishment of schools and colleges and it would not do for them to repeat the same folly" but the liberal Britishers vigorously pursued their objective of educating the Indians.

Nevertheless, despite their well-articulated system of education for about a century (1854-1947) and their official solicitude for the promotion of edcation in India, the British did not leave us any rich educational legacy on the eve of freedom in 1947. On the literacy front, our legacy from the British was 14 per cent. Little attention had been given to pre-primary education and even its modicum was not regarded as State responsibility. Except a few pre-primary centres run by the Christian missionaries and some philanthropists in the metropolitan cities pre-school education was nonenity. Its importance, for the first time was recognised by the Sargent Report (1944), which accredited it as an essential base for an ideal national system of education.

In 1947 there were 172,000 primary schools with an enrolment of 14.11 million, which gave us one child out of 3 children in the age-group 6-11 in the primary school. The remaining 66 per cent of this age-group were street urchins. There were 5,000 secondary schools with an enrolment of 8.7 lakh or 4 per cent of the children of 14-17 age group. The 19 universities and 400 colleges in the country had an enrolment of 2.5 lakh students. The total expenditure on education was Rs.57 crore or ½ per cent of the total revenues of the Government. The Britishers adopted and promoted the "downward filtration theory" of educating the elite expecting that education will filter down to the masses. That, however, was not to be. Instead, this theory resulted into elitist system of education, by and large, confined to the urbanites, thus having no impact on the rural people or on the lower socio-economic strata of the urban society.

The system of education neither helped the individual to realise his potential, nor was there any social satisfaction. On the other hand it divided the society into two classes—the elite, who received formal education and the folk who produced national wealth with the sweat of their brow but were not supposed to have any formal education. Being incapable of meeting the needs, demands and aspirations of our resurgent nation, it had only a monolithic purpose of producing helpers in the administration rather than persons for multiple jobs.

Free Nation's Focus on Education

Increasingly recognising the key role of education in the multifaceted national development, the founding fathers of our new Constitution, provided the terra-firma for raising the new edifice of education through comprehensive educational provisions in the New Constitution as well as by assigning a vital place to education in National Planning. An appraisal of the Constitutional clauses on education shows that "in a vast country like ours, the position given to education in the constitution is probably the best because it provides for the Central leadership of a stimulating but non-coercive character." In view of the need for having a national policy on education, coordination of facilities, maintenance of standards of higher education, the sponsoring of pilot projects and the running of scientific and technical institutions which involved huge finances were vested in the Central Government. The adoption of the system of Parliamentary democracy based on adult franchise warranted the liquidation of mass illiteracy and the provision of quality primary education. Therefore, it was incorporated in the constitution as a Directive Principle of State Policy that within 10 years (say by 1960) all the children of age-group 6-14 will be in schools.

Since cataclysmic changes in objectives, structure, processes and administration were needed a surfeit of thinking was done by three national Commissions (Radhakrishnan Indian Universities Commission 1948, Mudaliar Secondary Education Commission 1953 and Kothari Indian Education

Commission 1966) and a plethora of expert Committees, all of whom propounded grand theorems and made projections for the reconstruction of education at all levels and of all types to suit the great changes, which were visualised in the process of time.

New Dispensation

With the attainment of independence the entire perspective changed. Our national Government was quick to recognise the factors round which the future plans of national regeneration and development must revolve. Addressing a press conference the first Union Education Minister, Maulana Abul Kalam Azad observed, "Education should have the highest priority on our national budget and should take its place immediately after food and clothing." In order to transform the tradition-bound people of India into a dynamic nation a planning era was incepted to bring about in the country progress and prosperity through industrialisation, scientific mechanisation of agriculture and by exploiting the national resources of the country to the fullest possible extent. These national objectives could be realised by different type of general education and by greater emphasis on scientific and technical education. The prevailing system, structure and substance of education could hardly suit the changed political context as well as the concomitant changes in the socio-economic-cultural aspects of the country. The national goals had to be defined and education was to be reconstructed, expanded and enriched to meet the new challenges, of the nascent democracy. It was also necessary that there should be no imbalances in the standards and facilities of education. Alive to this realisation, education was given an honoured place in the Constitution of India. The magnitude of the task of future education was so stupendous that unless joint responsibility was put on the Centre and the States, sizable achievement within a reasonable time was not possible.

The climate on the advent of Independence, therefore, was that education was accepted as nation's responsibility and a national system of education was considered the pre-requisite for keeping India progressively united. Dissatisfied with the existing paradigm of education our leader began to look for a distinct model of their own. In addition to the bequeathed British model before them were the American model, where educational system was highly decentralised and the Russian model, where the nation controlled and conducted the entire system of education. Unlike these two models India decided to strike a via media of co-partnership between the Centre and the States (the latter sharing the educational obligations with local bodies and the voluntary agencies). In the new Constitution, education was given an honoured and liberal treatment as is reflected in several clauses pertaining to education, culture and fundamental rights.

Under legislative powers, the Constitution has clearly demarcated Union list of 97 items, a State list of 66 items and a concurrent list of 47 items. The educational items are included under the Union and State list. In view of the rich diversity of India in natural wonders, cultures and races a fundamental decision was taken to treat education as a state subject and also to vest the residuancy powers in education to the State Governments, reserving however, to the Government of India, the items like (i) standards in universities (ii) institutions of national importance (iii) Union agencies for professional education and (iv) coordination and determination of standards of vocational and technical training of labour.

The good intentions of the Constitutional provisions of education notwithstanding, the aspirations envisaged were foiled before long. The nonfulfilment of the objectives of Art. 45, aiming at providing universal education in 10 years (i.e., by 1960) for the children 6-14 age-group in particular and education system in general remaining an immobile colossus disillusioned the educational thinkers, planners and administrators. The states were being blamed for being slow and dilatory in taking strong measures to accelerate the progress of education. Eyebrows were raised over issues like. Have not the states miserably failed to achieve the objective of universal education? Why are there serious imbalances in various States—Kerala versus Bihar in literacy, Punjab or Haryana versus Orissa in economic standards? Are all the

States implementing the 3-language formula seriously ? Is it not a fact that we have a national language only in spirit and not in practice ? Are the states modernising education in their respective areas? Are the grants given by the Centre being properly utilized by States on educational innovations? It was felt that unless the Centre had some overwhelming jurisdiction over education, the malaise will not be cleared. It was for lack of adequate authority at the Centre that national policies and pledges could not be implemented. The feeling gained momentum that education must be concurrent subject. In view of this, the Kothari Commission (1964-66) reviewed the Constitutional provisions but the majority of the members, however, expressed the opinion that status quo should be maintained.

In 1968, during the discussion in the Rajya Sabha on the University Grants Commission (Amendment) Bill, several members including the former Education Minister, Mr M.C. Chagla made the demand that education be brought in the Concurrent list. He said, "We made a serious mistake when we drafted the Constitution in making education a State subject." Dr Triguna Sen, the then Union Education Minister turned down as impracticable the plea for making education a concurring subject. The proposal again re-echoed in the Parliament on the 14th May, 1970 when a debate on a Bill to amend the U.G.C. Act was going on. Many M.P's pleaded for Centre assuming a dominant role in the sphere of higher education. Many appeared to think that this would be achieved by funnelling more grants to the State universities through the U.G.C. and by creating one Central university in every State. One member suggested that Parliament should amend the Constitution to make education a concurrent responsibility of the Centre along with the states. The struggle, however, kept on simmering for a quinquennium, when ultimately Education was made concurrent subject by the 42nd (Amendment) Act of the Constitution, which received President's assent in December 1976. A year after (1977), the Janata Government desired to switch back to the original position by scotching 'education' from concurrent list. The counsel of debate and discussion, however, prevailed and education was retained in the concurrent list.

Always there is a room for an honest difference of opinion whether a country as diverse as India can be run better through giving much power to the States or by investing the Centre with greater authority. Prima Facie, seen in the present context of educational situation, education as concurrent subject is a bonanza of hope and promise. The idea is not to encroach on States' rights but to ensure a more cohesive national purpose in a field like education, which has a vital bearing on the nation's socio-economic transformation. Education should have a national perspective and educational policies should have national uniformity (taking of course into account the local needs and conditions). This will enable the Central Government to plug the loopholes, which have plagued the field of human investment and remove the imbalances and disparities. It will provide the teachers with much needed relief in the matter of service conditions and in innovative and academic liberty. The Centre can effectively intervene in national interest. It is after all big brother and have liberal purse to dole out to the States to accelerate the pace of developmental programmes. The regional trends and tendencies will be discouraged. We should not have the fear that initiative and flare for creative improvement in the States will be lost and the States will have more inhibition. A State with broad vision will not be stalled if it has the 'political will' to implement its progressive thinking. The erroneous thinking that Constitution comes in the way of social progress cannot stand close scrutiny. Education as concurrent subject is rather re-assuring to potential reformers in education. It will serve as ombudsman. Hitherto it was a moral or social instinct that motivated the Centre. Now it will also have a constitutional sanction. The legitimate changes in the Constitution must come. Care has, however, to be taken to see that the vital props of the democratic process of decentralisation are not weakened.

2. Configurations of Education

With the perspective wherewithal of education, as explained yesterday, I propose today to make the status study of the major configurations of education as well as to assay their bracing possibilities to suit the genius of the technetronic society. Taking up first primary education, I can say that despite intentions, efforts and expenditure, primary education has remained a dream unrealised.

Primary Education—An Unrealised Dream

Article 45 read with Article 12 of the Indian Constitution made the provision of universal, free and compulsory primary education. It was accepted as the joint responsibility of the Government of India, the State Governments and the local authorities. The Central Government is to formulate the national targets to be reached, to ensure maintenance of equal standards in quality and quantity in all parts of the country and to give financial assistance to the State governments for implementing the compulsory primary education programme. The State Governments are required to provide the teachers, their training and supervision and the local authorities are responsible for opening schools with grant-in-aid from the State Governments, of course proportionate to the financial position of each local authority. The laudable ultimate objective was that by 1960, that is within 10 years of the promulgation of the Constitution of independent India, all children of the age-group 6-14 were to be in primary schools. The prevailing system of primary education, which was single-point entry, sequential and formal system of education was found inadequate to provide good universal primary education to the children of 6-14 age-group or to substantially eradicate illiteracy among the masses.

Not that the intention was not there. The Government was anxiously concerned to "educate the master", the voting citizens of tomorrow. Not that the money was not allocated. Whatever could be spared was ungrudgingly given. Not that the efforts were not made rather the schemes and innovations were abundant. The curriculum was enriched by introducing work experience, social studies and general science. Tall promises were made for converting all schools into community schools, which were to provide multipoint entry, part-time education as well as private study. Recently, the programme of non-formal education for the 14-25 age group has also been incorporated. For the expansion of staff, locally available talent was to be utilized. For buildings, the farm houses or any other available structures were to be utilized. All this, however, ended to be the will-o-the-wisp.

All-out-efforts notwithstanding, the primary education remained a dream unrealised. In the constitutionally pledged year of 1961, the goal of universalisation of primary education still eluded the country. The enrolment in that year in the age-group 6-11 was 340 lakhs or 60 per cent as against 181.93 lakhs or 41.5 per cent in 1949-50. In the age-group 11-14 it was 62 lakhs or 22.8 per cent as against 28.44 lakhs or 11.9 per cent in 1949-50 of the total population in this age-group. What a snail's pace in 10 years. The legislative acts were passed but they failed to make any dent in increasing the universality of primary education. The Enforcement Acts became permissive rather than mandatory as the recalcitrant parents were not proceeded against since they were voters and the politicians could not brook their annoyance or displeasure. Even providing the schools within walking distance did not help achieving universal enrolment and retention of children in the schools. The proportion of children left out of school continued to remain higher in rural areas. The large number of girls in general and the children of the scheduled castes/tribes in particular constituted the bulk of those who remained unschooled. The social inhibitions and the age-old prejudices still forced the girls to stay at home in rural areas and backward families. The incidence of dropouts have not gone down. If 100 pupils join the I primary, by the time they are 11 years, they are 40, while only 25 remain in schools when they are 14. At the 17 the number is reduced to 10 and by the age of 21 it falls down to 2. Taking the 6-21 age-group as a whole only 20 per cent of the total population is in schools. After 32 years of independence, India has 30 crores of illiterates representing half the population of illiterates in the whole world

Planning Booster

Not discouraged by this distressing situation, the successive five year plans realised the critical significance of the universal primary education for social transformation and gave higher priority to this level of education, as a result of which considerable progress was registered as may be gleaned from the following table:

Enrolment in Elementary Education (1950-1974)

Plan		Classes I-V (in millions) age-group 6-11	Percentage of children to total population in age-group6-11	Classes VI-VIII (in millions) age-group 11-14	Percentage of children total population age-group 11-14
1950-51	Boys	13.8	60.8	2.6	20.8
I Plan	Girls	5.4	24.9	0.5	4.3
	Total	19.2	42.9	3.1	12.6
1955-56	Boys	17.5	72.0	3.4	25.4
II Plan	Girls	7.6	32.8	0.9	6.9
	Total	25.1	52.8	4.3	16.5
1960-61	Boys	23.6	82.6	5.1	32.2
III Plan	Girls	11.4	41.4	1.6	11.3
	Total	35.0	62.4	6.7	22.5
1965-66	Boys	32.2	96.3	7.7	42.2
	Girls	18.3	56.5	2.8	17.0
	Total	50.5	76.7	10.5	30.9
1968-69	Boys	34.3	95.6	9.0	47.0
IV Plan	Girls	20.2	59.6	3.5	19.3
	Total	54.4	78.1	12.5	33.5

Sources 1. Ministry of Education and Social Welfare, Education in the Fifth Five Year Plan.

2. Planning Commission, Draft Fifth Five Year Plan Ch. VIII.

On the advent of the Fifth Five Year Plan (1974-79) the enrolment in classes I-V was 63.8 million (or 84 percent of the total population of 6-11 age bracket children, 39.4 million (100 percent) being boys and 24.4 million (66 percent) girls. In classes VI-VIII, 15 million (36 percent of the total population of 11-14 year olds) were enrolled, 10.5 million being boys and 4.5 million girls. In the current Fifth Five Year Plan (1974-79) high priority has been accorded to elementary education. It is proposed to enrol 130 lakhs additional children I-VI and 58 lakhs additional children in classes VI-VIII. Out of the total plan provision of Rs 1285 crore for education, Rs 410 crore (about one-third of the total outlay) is provided for elementary education (I-VIII). During the period 1974-78, expenditure of about Rs. 281 crore was incurred which is about 70 per cent of the Fifth Plan outlay.

This enrolment profile indicates some worrisome features. While substantial progress has been registered in the enrolment of boys, the enrolment of girls is far below the national average. In this, the share of the enrolment of children of scheduled castes and scheduled tribes is not commensurate with their proportion in the total population. According to 1971 census there were 14.6 percent scheduled castes and 6.9 percent scheduled tribes. The proportion of their enrolment in 1975-76 was—classes I-V 11.2 per cent scheduled castes and 5.1 per cent scheduled tribes. In classes VI-VIII the scheduled castes were 8.3 percent and scheduled tribes 3.1 percent. By the bye, the projections of the Sixth Five Year Plan (1978-83) are also available. It is summarised that in 1982-83 the population of the children of age-group 6-11 will be 437 lakhs boys and 413 lakhs girls, giving a total 850 lakhs. In the age-group 11-14, the population will be 257 lakhs boys and 243 lakhs girls. All told educational provision for 1350 lakh children will have to be made. Enrolment in 1977-78, is 898 lakhs. The provision, therefore, have to be made for 452 lakhs—137 lakhs for classes I-V and 315 lakhs for classes VI-VIII. To achieve the constitutional target of putting all the children of 6-14 age-group in schools by the Sixth Plan 1978-83 would be a formidable task. The working group on universalisation of elementary education, therefore, has recommended, "that the target of additional enrolment in the Sixth Plan (1978-83) should be 320 lakhs—220 lakhs in classes I to V and 100 lakhs in full-time school and 120 lakhs in part time classes. In classes VI-VIII the additional 100 lakhs children can be enrolled. 60 lakhs in full time schools and 40 lakhs in part-time education.

We wish well to all this thinking and its implementation, but we cannot push under the rug the several factors, which inhibit the achievement of the national target of universalisation of elementary education (6.14) as pledged in Constitution. The most important factor that inhibits enrolments is poverty so that the vast bulk of non-enrolled children belonging to the weaker and poor sections of society consisting of scheduled castes, scheduled tribes, landless agricultural labourers and people living in urban slums. Such children, at a very tender age are compelled to earn, rather than to learn, with a view to augment the meagre family income. Despite the incentives provided for the promotion of girls education, it is slow in catching the imagination and conviction of socially backward communities.

Another factor to be reckoned with is that in the availability of educational facilities, there are inter-state and intra-state disparities and imbalances. For example, at the end of 1977-78 while 115 per cent of the children in the age-group 6-11 were attending classes I-V in Tamil Nadu, in Rajasthan it was 67 per cent. At the VI-VIII stage, variation was from 92 per cent in Kerala to 26 per cent in Rajasthan. The disparities in enrolment, within a state are more severe than among the States. For instance in Rajasthan, while enrolment in classes I-V in Jaipur district was 129 per cent of the population in the age-group 6-11, it was 27 per cent in Banswara district. There are eight states, which have nearly 74 per cent of the non-enrolled children. Universalisation of elementary education is a serious problem there. In the remaining 23 states and Union territories there are 24 per cent non-enrolled children. Only through special and serious efforts they will be able to achieve the cent per cent target in the Sixth Plan.

The most accentuating factor, which has complicated the task of universalisation of elementary education is that despite the increase in the "inputs" in terms of finances and facilities during all the Five Year plans, the incidence of wastage and stagnation, which result in the large proportion of drop-outs as indicated earlier. The high proportion of drop-outs is an intractable problem. Since most of the drop-outs occur before class IV, they add to the number of illiterates. This, together with rate of population increase accounts for the fact that while the percentage of literacy has advanced in the country in the post-independence period, the number of illiterates in absolute terms has also been increasing We, therefore, face a twin-challenge of enrolment and retention. The most annoying feature of enrolment is over-reporting, that is a certain proportion (some believe it from 8 percent to 47 percent) of the total enrolment is spurious in the sense that it includes children whose names are shown in the registers while actually they do not attend school.*

Efforts and expenditure notwithstanding, no one can deny that primary education has not clicked to the desirable extent. The reasons for non-clicking may be attributed to factors like poverty, conservatism of the illiterate masses, the inhibitions of weaker sections of society and the rule of child's earnings or helping hand for the poor parents, but the task faced is stupendous and the challenge posed is big and warrants a big response.

The Challenge and the Response

The big challenge requires a multifaceted response. Investments and outlays during the next five to ten years have to be large and liberal in view of large additional enrolment expected and the need to provide students' ancillarly services and amenities (like free supply of books, and stationery and school uniform and meals to needy children). The relevance and quality of education should be radically improved. It is impossible to retain children in dull, soulless and unattractive classrooms. The schools should be made attractive by equipping them with audiovisual material and activity methods of teaching. Such schools will be able to hold and retain the children for the complete course of primary education. In some States, the practice of holding an examination of children from I onward causes wastage of 40 percent to 45 percent in the first two classes. It is not humane to subject the children of such tender age to the rigours of formal examination system. Maintaining their cumulative records of performance and accomplishment should entitle them to promotion. Better control, meaningful supervision and cooperation of the community will go a long way in offsetting the problem of stagnation, drop-outs and push-outs (manipulated by unsympathetic teachers).

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*Andhra Pradesh, Bihar, Jammu and Kashmir, Madhya Pradesh Orissa, Rajasthan, Uttar Pradesh, West Bengal (Vide Interim Report of Working Group on Univeralisation of Elementary Education) Ministry of Education and Social Welfare; p. 5.

Since the formal institutions cannot cope with the stupendous task of universalisation, the non-formal channel must supplement the efforts of the formal institution especially in areas where scheduled castes/tribes are concentrated. Provision of multi-point entry and part time and private study system are the "must." Generation of "awareness" among the ignorant parents about the value of education is equally important.

With a view to fighting the scourge of drop-outs, the National Council of Educational Research and Training has lately initiated effective meassures in collaboration with the State Governments. Intensive programmes have been launched to introduce ancillary services for the children studying in primary schools and orientation programmes for teachers in order to create an atmosphere conducive to increasing enrolment and decreasing drop-outs.

Besides, efforts are also afoot to provide education to drop-outs through the system of non-formal education to enable them to complete their elementary education up to class VIII and then pursue higher education. This system has already been started by various States for the children in the age group of 6-14.

The NCERT has taken up a pilot project in 15 States to set up the model for non-formal education centres. For these programmes a survey has been conducted to relate education to the socio-economic needs of the community.

Also teachers and teacher-educators have been appointed and the instructional material is being prepared by the NCERT.

The non-formal educational programme lays stress on multiple entry, ungraded classes, part time courses and functional education. The frame-work of 10-year school curriculum, prepared by the NCERT contains suggestions for attacking the problems of drop-outs by making education more interesting and responsive to the life and needs of children and community at large. The salient suggestions included are laying due emphasis on work experience, introduction of environmental studies ungraded system and giving more importance to physical education and sports.

With the objective of reshaping the curriculum, the NCERT has started setting up 450 centres in 15 States. A large programme for the orientation of the teacher and teacher-educator in the country in the light of ten year school curriculum is underway. It has also launched in collaboration of the State governments a massive orientation programme of the teacher leaders of the professional organisations of the primary schools both for the universalisation of the elementary education and for its transformation so as to check the school going children from droping out. Such programmes have benefited more than 2,000 primary teacher leaders, who in turn have oriented their counterparts in their own States. According to official sources as many as 500,000 of primary teachers have been oriented in the last 3 years through this technique. They are reported to be doing impressive work in both enrolment drive and checking the rate of drop-outs. The ungraded system, in some schools is proving useful for reducing the rate of stagnation and drop-outs, because it gives opportunity to children to proceed according to their pace. Under the system, the children are not declared 'passed' or 'failed'. The sequential units of different subjects are prepared and the children are allowed to complete the units according to their ability at different intervals of time.

In the ultimate analysis the teacher must play his vital and crucial role. Unfortunately the teacher has played no role in bringing about what Paolo Friere calls "Conscientisation" of the people. In his "Pedagogy of the oppressed", he underlines, "the reason why the illiterates look up to the teacher is that years of not having had the opportunity or encouragement of expressing their view of things and being treated as inanimate objects, have turned them into timid, frightened and seemingly lethargic beings who have forgotten that they are equally human and that they should have also known things and reacted to them and that they can also exist" and not only live. Unless the teacher first makes them aware of their situation that they are "parts of the world and reality and that they should lift themselves above the surroundings and transform them", no educational programme will ever click. By generating 'conscientisation' in the parents, the primary education is sure to get the boost when parents are convinced of the value and advantage of education. A radical change in the attitude of the parents of the non-enrolled children has to be brought about by the teachers. They will be doing a yeoman's service if they actively start a crusade for population-control, otherwise there would be about five crore new entrants by 1985 for whom schooling facilities will have to be provided. In the awareness programme universities and colleges must come forward in a big way to "adopt" backward areas.

The planners must realise what is axiomatic in education policy, that the greatest dividends are to be had from investment at the early stages. Primary education has to be accorded the first priority. Its share in the total allotment of education has been steadily coming down. In 1950-51, it was 40.1 per cent, in 1960-61 it was 28.5 per cent, at present it is 30 per cent. The per capita expenditure works out to paisa 50 while in the Soviet Union it is Rs. 20 and in Japan Rs. 25.

Neglecting mass education and proliferating higher education is just like building a massive edifice on weak foundations. If we could rehabilitate more than hundred million refugees in 1947, could we not plan a crash programme for putting hundred million children of 6-11 age-group in schools as soon the nation became constitutionally pledged to put all children of 6-14 in schools within 10 years of the promulgation of the Indian Constitution in 1951.

Without peering into the past and moaning over it, we should have for primary education an accelerated multifaceted programme including multipoint entry, double shift system (as in Kerala) education and private study to cover the children of entire community. It will go a long way to correcting the inter-state imbalances in enrolment. A change in the form and content of education will bring the masses in the forefront and prepare them to mould their own future.

Elementary education must be viewed as a major social challenge for bringing about social transformation. In this the private enterprise and other non-formal agencies must play a vital role. Instead of mouthing only platitudes and indulging in ritualistic exercises of holding seminars and conferences we should put our shoulders to the wheels.

Secondary Education – A Guinea Pig

The Perspective

Perhaps no other configuration of education has involved so much surfeit of thinking, discussion and deliberation as the secondary education, which no doubt constitutes a very vital link in the chain of educational system. Unfortunately it has been treated as a guinea pig. The secondary education as understood in modern connotation, was as such unknown in ancient and medieval India. There were gurukulas, pathshalas, ashramas, maktabs and madrasas for primary education and then sanctuaries of higher learning. The present shape of secondary education in India, in fact, is the gift of the British, who initiated in 1854 an articulated system of education, having three distinct levels—primary, secondary and higher (university and college) education.

During the last about one century, the nature, scope and functions of secondary education have been threadbared by four national commissions and a plethora of committees, conferences, symposia and educational bodies. The first shot in this direction was fired in 1882, when the Hunter Commission was appointed to review 28 years (1854-82) progress of education in India. This commission recommended that, "normally in high schools, there should be rwo avenues, one leading to entrance examination of the university and the other one of more practical character for commercial, vocational or non-literary pursuits. This suggestion, however was honoured in breach rather than in adherence. The Calcutta University (Sadler) Commission in 1917 poked its nose and recommended the institution of "Intermediate college" which in their words was to be "regarded as fulfilling a double purpose. In the first place, it must provide a training such as will qualify its students for admission to the university or in other institutions of higher or technological training. Secondly, it must provide training suitable for students who, after completing this course, will proceed directly into various vocations. As the system develops we should expect to find an increasing number of students entering upon the intermediate course solely with a view to prepare themselves for various practical careers." The Hartog Committee (1929) and the Sapru Committee (1934) emphasised the importance of vocational and practical training at the secondary stage. But the Sapru Committee suggested, "the intermediate stage be abolished and the secondary stage be extended by one year, the secondary stage to consist of six years to be divided into two, the higher and lower, each covering a period of 3 years, the whole course thus covering 11 years, five for the primary and six for secondary, the general course to be of eight years that is up to the lower secondary course, vocational training and special education should begin after this stage. The degree course at the university should extend over the period of three years."

To highlight the importance of vocational education, the Abbot and Wood Committee advised the Government in 1937 to promote this education by opening polytechnics, which did come into existence. In 1944, the Central Advisory Board of Education recommended (Sargent Report) 6-year duration for the high school course and 3 year degree course at the university, at the same time suggesting the abolition of the intermediate course by attaching the first year of this course to the school and absorbing its second year in the degree course. The Radhakrishana University Education Commission (1948-49) re-emphasised the utility of Intermediate colleges, averring that "the aim of these colleges would be to meet a variety of needs of young men by giving a vocational bias to their courses while retaining at the same time their value in a system of general education as a preparation for university course." They, therefore, recommended that

(a) The standard of admission to the university courses should correspond to that of the intermediate examination, that is completing 12 years of study at school or in an intermediate college

(b) in each province a large number of well equipped and well staffed intermediate colleges (IX to XII or VI to XII) be established and

(c) in order to divert students to different vocations after 10 to 12 years of schooling a large number of occupational institutions be opened.

Four years later (1952) a Commission exclusively concerned with secondary education (The Mudaliar Commission) recommended three stages, viz,

(1) Primary stage (4 to 5 years duration)
(2) Middle (Secondary) stage (3 years duration) and
(3) Higher secondary stage (4 years duration),

thereby suggesting the abolition of Intermediate colleges by absorbing the first year of the intermediate stage into the higher secondary and the second year in the degree course, thus introducing three-year degree course. It was also recommended that the higher secondary schools, by and large, should be multipurpose or multilateral institutions, offering courses in seven streams—Humanities, Science, Technical, Commercial, Agriculture, Fine Arts and Home Science so as to enable the secondary stage learners to select subjects suiting their abilities, aptitudes, interests and inclinations. The VIIIth class was to be treated as the DELTA class, after which the students were to be drafted to different streams.

Prima facie the scheme appeared to be sound and acceptable. Its implementation started in all the States, except U.P., where the Intermediate College continued. During the decade of its implementation (1956-66) a large number of high schools were converted into higher secondary institutions. Soon, however it was felt, that the higher secondary was not all perfect. It suffered from many a lacuna, the chief being that the end of class VIII was considered too early a stage to make the choice of the subjects according to aptitudes. This pattern appeared to be motivated more by the constraints of economy rather than by the logic of psychological and educational soundness. Despite the vociferous claims of its inherent goodness, the scheme did not click as envisioned. The multipurpose of multilateral ideal remained illusory. Rarely were there higher secondary schools, which had even five streams. The majority of them provided Arts,

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Science and Commerce and offered courses leading to university admissions and were least bothered about those students who wished to enter the real life careers. Wherever vocational courses were provided, their "content" was so weak that these courses could neither become terminal nor preparation for the pursuit of vocation. As such these courses did not gain any popularity. Moreover, science and mathematics tended to be neglected, since they were studied till the end of class VIII and thereafter the student could drop them if he so desired. Living in the scientific age of not studying these two subjects to a reasonable extent seemed anomalous.

The entire issue of secondary education, however. was examined *de novo* by the Indian Education (Kothari) Commission in 1964-66. The Commission found a confounding maze of educational structure prevailing in the country. As many as 10 patterns were being followed in the 28 States and the Union territories. Even within a State there was no uniformity. For example in the State of Maharashtra, the region of Marathwada and Aurangabad was following 10+1+3 or 11+3, while the Western region was following 11+1+3 or 10+2+3 or 11+2+2. The educational structure was all a number game with 10 or 11 plus 1, 2, 3 rather than a structure based on sound psychological and educational considerations. The Commission ended the *quid pro quo* game by underlining the primacy of a uniform educational system, which should be conducive to national integration in a huge country of diversities like India. Taking a "Gestalt" view of education, the commission suggested a well-articulated and perfect model from the pre-primary stage of 1-3 years, primary stage of 7 to 8 years, lower secondary stage of 3 to 4 years in general education or 1 to 3 years of vocational education, a higher secondary stage of 2 years of general education with vocationalisation or 1-3 years vocational training and lastly to a first degree course of 3 years, followed by a post-graduate degree and a research degree courses of varying duration.

Succinctly speaking the new structure apart from 3 years of pre-school education, was to be 10+2+3, may be followed by research degree of varying duration. This meant 12 year schooling and 3-year graduation. The school stage was again divided into two parts—one, up to the end of class X to give general education in core curriculum. The second part, that is 2-year higher secondary was to have two distinct streams—one, preparing the student for admissions to universities and the other, preparing for different vocations. It was expected that 50% of the students would thus siphon off to vocations. Grounding in science and mathematics to every person was considered necessary to prepare the future generation for living in a technetronic society as well as to ensure vertical mobility to the middle-level workers.

The new pattern of 10+2+3, besides being supported by educationists, student organisations, Central Advisory Board of Education, the University Grants Commission and the Government of India Resolution on Education (1968) was also endorsed by the Dr. Sampurnand National Integration Committee. In 1974, however, the Central Advisory Board of Education resiled from the position and recommended a slight alteration by suggesting the pass degree course of 2 years and Honours degree course for 3 years, so as to meet the wishes of those, who would not like to pursue higher education beyond 14 years and to enable the more competent and ambitious students to have honours degree in 15 years. This was accepted by the University Grants Commission.

Consensus Model Evolved

This perpetual quest culminated into evolving a viable model of secondary education, capable of meeting the needs and aspirations of the individual as well as the emerging demands of the technetronic society. Although uniformity is not a virtue in education and the local conditions and learning traditions do necessitate pragmatic elasticity, the need for a uniform educational system in a huge country like ours cannot be over-emphasised even from the limited point of view of facilitating mobilization of students from one region to another without encountering any difficulty in terms of standards, courses of study and text-books. The implementation of this consensus model will result in significant advantages. The secondary education, hitherto considered as the weakest link, will be strengthened in terms of optimal duration better teachers and more facilities. Up to 10 years, all the boys and girls will receive broad-based general education in nationally approved core curriculum, including science, mathematics, work-experience, social-sciences, language, art, music, other aesthetic activities, moral instruction and health education. The personal and social objectives of education like national integration, secularism, promotion of the concept of justice and equality will be taken into account in this curriculum, thus making education relevant to the needs of the children and the community. The study of science and mathematics and having work experience upto class 10 are included not only for the sake of technology or science which our society increasingly needs but also for the cultural benefits that flow from science. The compulsory study of science will eliminate the dichotomy of two cultures of science and humanities. The work-experience will only create respect for work and the working man but will also enable the children to appreciate the real problems and handicaps of our society both at the material and the human level. Moral education will generate in them new values of work, wealth and worship. Some portion of this period can be used for service in a socially desirable cause or humanitarian activities. Thus the 10-year schooling will be an essential education to produce enlightened citizens for living successfully in the modern world.

The plus two stage will have differential curriculum with vocationalisation as an integral part so as to suit diverse abilities and aptitudes and enable the learners to fulfil their needs and aspirations in the changing socio-economic texture. This stage, permitting the free choice of subjects, therefore, besides being functional and qualitative will be complete and comprehensive to serve the twin purpose of catering for those who wish to enter university as well as for those who wish to join the work-force or pursue some vocational training course. At this stage the students will be wiser and maturer to make tentative decisions about their future career or for embarking upon some programme of pre-specialisation. The gifted students will receive intensive care and remedial education will feature in for those who have some shortcomings or weaknesses left in them in the earlier stage of education. The intensive vocationalisation at this stage, it is hoped, will take away about 50% of the students to further vocational training course and to employment market instead of hankering after white-collared jobs, thus reducing the pressure on colleges and universities, which in turn will receive students who have basic calibre and achievement aspiration. The facility of transfer from one set of courses to another set of courses (if the student so wishes) will be another important advantage of this new model.

In this new dispensation, the content and quality of education will progressively improve. Education, tailored to suit the age and ability of the students will satisfy the academic and psychological considerations of the learners. In no way the 12-year school is the old vintage Intermediate College. It will be 12 year school in letter and spirit. Presently, with 10 or 11 years school (the age of admission being, by and large, 5 years), the students aged 15-16 enter the university stage. In reality they are children, who deserve to be taught by methods appropriate at school stage. By sending them to the university, the schools lose their full stature by the cut in secondary school duration and their standards are adversely affected. On academic grounds 10+2 completes are fit to enter the university system. In the educationally advanced countries, a student entering the university is expected to be 18 years of age or more when he is properly motivated to study on his own to profit from university education.

The subsequent graduation stage having a pass course of 2 years and Honours course of 3 years has distinct advantage. Those who wish to do graduation in 14 years, can jolly well fulfil their limited ambition. The B.A. Honours course of 3 years will naturally attract the more competent and better motivated students, who will help raising standards, especially at the Post-graduate level. However, it should be open to all students, who have taken the first degree in the pass course to appear for the first degree in the Honours course at any time. The demands like specialisation of knowledge, broad-based general and interdisciplinary education, the freedom to the students to choose subjects matching their individual capacities and interests, greater emphasis on practical experiences/field work and project-oriented studies and linking the system of higher education with the community programmes of social and national development are enough reasons for the degree course being of 3 years duration. Such curriculum canvas at the first degree level will facilitate the problem-oriented inter-disciplinary courses at the Master's degree level as well as at the level of research degree of 3 or more years duration.

Value Judgement

From all points of view the new model of 10+2+3 presents a national system of education, suiting the genius of our renascent nation. It is perfect and philosophically and psychologically sound system from the primary to the university stage. It is an integrated approach, taking into account all configurations of education. It is rooted in the clear visualisation of the goals of individual life and the social life. The philosophy behind the new pattern is a blend of idealism, pragmatism and realism. The identification of goals of each one of the stages (10+2+3) reflects idealism. When we accept education as closely related to social, economic and national problems like creation of socialistic society, increment of economic productivity and generation of national emotional integration that indicates "realism." Its "pragmatic" elements are in focus when we talk of "Core" and "differential curriculum." The planning of educational facilities on the basis of manpower needs of the society shows the highest degree of pragmatism.

The new model is a serious attempt to transform the hitherto lop-sided type of secondary education into an education, complete and comprehensive, bringing the boy or the girl at a cross-road either to terminate education to enter the work-a-day world or to divert to some professional or vocational channel or to enter the portals of higher education. It is envisaged that at the end of the primary stage about 20% students would be diverted from the stream of general education into different vocational courses or into easily available callings and at the end of 10 years of school education about 30% may drift into some smaller trades, mechanical vocations or self-employment avenues. The major thrust of the new pattern is to integrate the world of work and the world of learning and not to produce the snobs, who flaunt their culture. By developing new values of work, wealth and worship, the learners would be enlightened citizens and sincere contributors to socio-economic-cultural change. It seeks to make transition from one stage of education to another orderly and uniformly by placing greater emphasis on drafting the students in conformity with their abilities and aptitudes. Twelve-year schooling is a good line of demarcation between essential education and higher education.

If effectively implemented, the new pattern has the potential of solving many problems of education, which promises to be relevant, innovative and quantitative. Nevertheless, in view of the traumatic experiences of the implementation of Basic education and 11-years higher secondary scheme, there are a reasonable number of people, who have apprehensions and misgivings about the success of the new model. Even some well-meaning persons raise their eyebrows and say that in theory the new pattern is very well conceived but the rub is that it is too idealistic to stand up to the realities of the Indian situation. Considering the prevailing social attitudes, would a firm executive reconcile himself to the idea that his academically inept son going into the vocational stream and becoming a lathe worker ? Some others contend, where are the resources to provide training to hordes of boys and girls for vocational streams. Moreover, the large-scale vocationalisation involves a long time of hard home work to design the content and programmes so that it may not remain diluted, thus presenting difficulty to the products entering the work market. Looking at the 'vested interests' inertia in grass-root workers and inbuilt resistance to change, they believe that the new 10+2 institutions (by whatever name they are called) will, by and large, become mainly university preparatory schools. To them it seems inevitable in case of the Indians, constituted as they are, to go on with the rut as long as they can postpone the doomsday of landing into unemployment area. There is a feeling that the new institutions will not get appropriately qualified teachers, since the college teachers, presently teaching XI and XII classes are in the lecturer's scale (sanctified by the U.G.C. oracle). To allay this misgiving, the proponents of the new formula say that the teachers, teaching higher classes in 12-year institutions will certainly gain in salary and status if they improve their qualifications and professional competence. Similarly, the college teachers need have no fears of retrenchment on account of fall in college enrolments in view of the boom in our population. On the other hand the college teachers will have better, maturer and more motivated students, who will enter the colleges and universities.

Let us, at the same time, not deny the problems and issues, with which the model is bristled up. These may be vital but they are not intractable. To reckon with 100 million students, who are to be provided new education and then the size and diversity of the country, which is beset with regional imbalances, inter-state and intra-state disparities is a herculean task. We must take congnizance of the numerous issues concerning curriculum, quality, teacher's calibre, methods of teaching and evaluation, equipment, buildings laboratories, libraries and workshop and the articulation between different configurations of education. The success and standards of a given system of education depend upon the extent and quality of these essential "inputs."

The vocational aspect of the higher secondary stage also poses a big challenge. If this aspect has to be successful, the industrial, commercial and manufacturing organisations must adopt higher secondary schools for imparting "inplant"/ on the job/apprenticeship training to those who opt primarily for vocational stream. 'For this new Apprenticeship Act will have to be passed'.

To crown it all, if the new pattern is made a serious business and has to be implemented in its full gamut, the government will have to provide large canvas of financial resources in building the requisite infrastructures and for providing large inputs, especially for running vocational stream, which means 4 to 5 times more expenditure than what the ordinary secondary school of status involves. Since it may not be possible for the state Governments to find the requisite resources to implement this programme fully a Central scheme of liberal financial assistance must come to the rescue of the State governments. The National Committee has estimated the cost of switch over at Rs 60/- crore but has also predicted that in the subsequent plans, there will be a saving of Rs 100/- crore in each plan in the expenditure on higher education by transferring one year of the present 3 years degree course and P.U.C. to secondary stage.

The prospect

In deference to the National policy, all the States have now accepted, in principle, the new structure. The fervour and fancy of controversy by and large, is over. As many as 26 states and Union territories have already adopted the new pattern. The rest of them have made plans to switch over, as early as the resources are available. Some states do find it difficult to raise the resources required to provide the requisite 'inputs', particularly to run vocational courses appropriately and effectively. While they are scratching their heads to find money to provide the hardware, the National Council of Educational Research and Training is busy in providing the soft-ware in the form of sophisticated curriculum, suitable textbooks and imparting training to the prospective teachers in the new educational technology and its concomitants so as to enable them to switch over to the new pattern smoothly and steadily.

In sum it may be said that the secondary stage, being of crucial importance cannot afford any more somersaults or upheavals. It is bound to be an instrument of national development, when it is diversified and accepted with open mind. Already we have wasted 30 years in arriving at the consensus. Why can't we now accept the recommendation of the Kothari Commission that a phased programme judiciously spread over 20 years will bring the new pattern into full swing with adequate preparatory work and optimal financial canvas.

We may not have struck a bonanza by evolving this model, but we cannot deny that this is an obviously viable and practical formula, suiting the present genius of India. After all education is such a social process, which has to remain under constant review and renewal in order to revitalise it in tune with a dynamic society. Whatever flaws in the new pattern are discovered in its operation, they have to be removed through well-deliberated thinking and firm decision-making with a view to keeping the educational system in proper gear. The educational planners are not unaware of issues, problems and difficulties involved. Multiplicity of problems cannot be denied. Only they solicit the bulwark of "political will" to tackle them in right earnest. Let us not look with more fear but with more hope. If hopes are dupes, fears can be liers. The past experiences should neither haunt us nor balk us in embarking upon the new scheme full steam ahead. The full blossoming and the flowering of the new model is assured if it is appropriately phased, planned and executed in terms of restructuring the relevant curricula, producing the right type of text-books, making optimal provision of laboratories, libraries and workshops, identifying vocational openings, estimating manpower needs, collaborating with industry for apprenticeship and employment as well as in designing an essential institutional structure for vocationalisation. More than this, it is essential that the teachers-to-be are adequately oriented to meet the changing situation and be able to adjust, adopt and rethink their expertise and techniques. A cautious optimism and 'single-minded will' on the part of the teachers to give a fair trial to change is more important than the confused euphoria about the change. Let them be good scouts and smile and whistle under all difficulties. A system is not to be blamed. The system is dependent on the individuals who run it. If they are not dedicated enough, how can any system work ? Let secondary education be not a guinea-pig any more.

University Education—Higher Price, Lower Pay Off

On the spectrum of education, conceived and planned by the British, the most clearly enunciated phenomenon was the university or higher education. The first salvo in this direction was fired in 1857, when 3 universities—Calcutta, Madras and Bombay were established. These universities were founded by the British for certain fairly well-defined purposes and thus were not free to define their own goals or philosophy. As such, the university system was developed and adopted to alien conditions and not to the situation in India. It will not be incorrect to say that the original top-down nature of the university structure, instituted by the British to retain control over higher education, has not undergone any radical change even after they have gone. The great weight of history has lain more heavily on Indian universities than on any other social institution in the country. An indication of this fact is evident from the fact that in many universities even today prevails a rule that foreign examiners are appointed to evaluate the doctoral theses even in subjects related to Indian history, Indian economics, sociology, etc.

Indian universities today suffer from several crises, any one of which is capable of sparking off a serious trouble. The prevailing crises, inter alia, requiring immediate and earnest attention are

1. Mounting Enrolments and rising costs
2. Sceptic and Angry Youth
3. Falling standards and irrelevant curriculum
4. Denigrated Teaching and Heterogeneous Faculty
5. Corroding Autonomy

Mounting Enrolments

The first crisis is that of explosion of a number of students storming the portals of higher education. The drive for literacy has led to a demand for primary education, which in turn is a forecast for an explosion of secondary education, which hitherto remained as a selective and narrow route to college and university. The latest trend is to democratise secondary education to the extent of "secondary education for all." The open policy of admission to secondary education has automatically led to mounting enrolments in colleges and universities. Fortuitously, our universities and colleges have responded daringly to the aspirants of higher education. On the eve of independence we had 3.5 lakhs enrolled in our institutions of higher education. Today the enrolment is fast approximating the 4 million mark. Against 19 universities in 1947, we have now 115. The number of colleges has risen from 636 in 1947 to 4569 in 1978. This phenomenal quantitative spiral over a period of three decades is in response to four factors. The first factor is explosion of aspirations of younger generation which free India generated in all its sons and daughters to look for a millennium-to-be. Secondly, as a result of explosion of population in our country, university age boys and girls, seeing no other alternative, have been blindly rushing to colleges and universities in order to postpone the doomsday of facing unemployment. Thirdly, the constitutional provision of equality of educational opportunity, whereby those to whom (scheduled castes, backward classes, frontier and hill tribes etc.) the doors of higher education had been hitherto closed, they have begun to enter universities as first generation learners. The fourth and the most important force is the explosion of knowledge and the new emerging social needs and demands of our society bidding fair to become a technetronic society.

The need for trained or even semi-trained manpower cannot be over-emphasied for our resurgent nation. In fact no nation has a chance of entering the modern world with only a small fraction of the population attaining the secondary school graduation. No people can hope to provide the leadership necessary for a modern society if only a small fraction acquires the university degree. In India, however, there is a tendency to overeducate young persons, because higher education, besides being regarded as a matter of social prestige, is also considered as a substitute rather than as preparation for employment. In the industrialised societies, a boy goes to university because he has penchant for learning, here he goes to a university as he has nothing else to do. Whatever efforts are made to regulate this tide by turning aside large fractions of the secondary school completers, they are opposed by the society and resented by the aspirants of the university education. The response of our universities and colleges have, therefore, been liberal. With the greater "intake" the functions and obligations of the university inevitably increased manifold. This growth by itself has meant intolerable strains on most institutions of higher learning. Unfortunately, the necessary reordering of functions, as warranted by the new situations and the changed context of the role of the university has not been commensurate with the desired and desirable new goals and new strategies of the university education. In this direction precious little has been done in spite of the plethora of recommendations made by Commissions, Committees, Working Groups and Task Forces, which investigated the maladies and produced weighty reports, incorporating the recipes for reform and panaceas for progress.

The second crisis of the universities is that of rising costs, which stems directly but not exclusively from the crisis of numbers. Revision of salaries of the teachers, spiralling prices of building material and the items of furniture and equipment and then the fast rising numbers have acted as multipliers in increasing the per capita cost of student education. As a result the budgets of the universities have gone up and the brunt has to be borne by the public funds in Indian situation, where people have developed a notion that every aspect of education is the Government's national responsibility. The financial stringency running all the way from serious to catastrophic has resulted in too much reliance on public funding, which has naturally increased government's surveillance of academic expenditures, which again has perturbed the autonomous character of the universities.

Sceptic and Angry Youth

Concomitant to the mounting enrolment is the angry youth. While the seats of higher learning should present a picture of harmony and creative humming activity, they sound like a discordant orchestra without a conductor. The Campus atmosphere is surcharged with mutual distrust, bitterness and uncertainty. It is unfortunate that the richest resource material of our country—the student youth—is in angry mood. This is the third crisis.

The students are in ferment for one reason or the other. The symptoms of this upsurge are strikes, demonstrations, outburst of violence, indifference, or permissiveness, depending upon the temperament of the student groups and the concrete problems, they face. Neither they nor their parents seem concerned with the colossal loss which these things entail in terms of wastage of academic time and the casualty of academic standards. Academic sessions have become irregular. Whatever the variations in the expression of the crisis, one thing is clear that there is tremendous unity in the aspirations of the student-world. They have a new vision of MAN in the technetronic age and believe that the education of such a man should be based on freedom, creativity, equality and fellowship. They feel that such education cannot be achieved unless the existing social structures are broken down. In the words of Edgar Faure, the Chairman of the UNESCO Education Commission (1971), "Educational systems with long established traditions are now the target of criticisms that often question their whole essence. The youth is in more or less open revolt against established educational methods and institutions."

The protest of youth is not simply directed against only a few traditional values of education but against all present establishments which perpetuate the existing unjust and dehumanising social order. Our changes and innovations in the education system, they are not willing to accept mechanically unless they see meaning and utility in them and unless these are the result of their participation in determining them. They want their involvement in everything that concerns them and seek to be not mere students but learners and creative individuals in a free society. They are vociferously sceptic about platitudinous aims, irrelevant curriculum, lecture-dominated methods, unreliable examinations and neutral type of research. They feel sore about their crowded hostels, filthy rooms, insipid food and absence of rapport between the teacher and the taught. Now the student tells the teacher, "your text-book covers all the world but makes no mention of hunger, monopolies, political system or racialism (30% of the world monopolises 85% of the wealth)." The students' quest goes beyond the mere facts of geography to man and his problems. They painfully realise that academic degrees for which they spend the best part of their youth are worthless parchment of papers in the present socio-economic conditions.

Exposed to the ideology of democratic socialism, they have developed a new consciousness, which holds out great hope and promise. Since unfortunately, their consciousness is neither articulate nor clear, they are often misled by interested parties. As such they express their resentment in violent protests, which invariably desecrate the teachers and institutions.

No one can deny that the young are zealous, dedicated, patriotic, aspirant and capable of building up the country, provided they have built their strength and stamina by physical fitness, their intellectual capacity by right knowledge, their occupational competence by essential skills and the spirit of disciplined team-work.

The student of today suffers from the crisis of identity. He comes to the university with certain aspirations and expectations that he will be helped to discover his potentialities. He does not come to the university solely to be instructed in some skills. He comes to grow in mind and spirit, to develop his critical faculty and individuality in life and belief. As such he has the right to be spared ruthless indoctrination. He feels frustrated when he finds none to guide him or counsel him for his individual, social and educational problems

The evolving awareness of youth is that man is a learning being. He does not need to be pushed or pulled about. He learns freely and spontaneously if a favourable situation is given. Ivan Illich says, "The touchstone of mutation in education is the honest recognition that most people learn most of the time when they do what they enjoy doing." The field of education, therefore, is to be broadened according to the wide interests of man. Moreover, the means of learning books, Lectures, mass-media and so on are to be made available to all. Our centres of teaching must become centres of learning by initiating the learner to more efficient self-teaching. So also, the centres of higher education should no more be degree distributing factories but study clubs and circles of enterprising learners. The Campus milieu offering such informal climate of learning will be a great bonanza for students, whose motivation will be the highest and the end results most creative. The centre of gravity should be on man, the learner. It is the rediscovery of the subjectivity of man in education. Learning is not an individualistic process. It is a continuous dialogue between persons. It is an open ended communication. It has to be impressed on the students that their true patriotism should over-ride all other lesser loyalties towards caste, creed, religion or political party, that India of their vision should be based on the principle that every Indian regardless of race and religion or creed enjoys equal rights and equal responsibilities, that anything which seeks to drive a wedge between individuals, groups and communities should be avoided and that the voices of violence and unrest and the slogans of extremism, being increasingly heard on the academes, will delay the realisation of India of the their dream.

For all this the faculty must come forward in a big way. Why can't we make it possible to hear the students, who must be prepared to say at committee meetings, conferences and coffee sessions, what they say among themselves ? There is a communication gap between teachers and students and administration. Developing a closer relationship between the two will give the latter a sense of participation. Why don't we involve them unstintedly in matters which pertain to them not on a token basis but in a substantial way ? Unless the younger generation is enabled to make democracy a way of life, the nation cannot survive. This requires the nourishment and growth of students' faith. Recognition of their creative impulse and their sense of serious independent thinking will resolve many problems that confront them. To enable them to know their significance in the modern society they should be taught issues such as 'international relations', 'economic growth', 'urbanisation', 'population growth', 'awareness of science and technology' and the advantages of mass-media. Their instructional programmes should include vital questions which concern their future life in the emerging technetronic society. Educating them to contribute to their culture means acquainting them with social forces and trends and helping them learn to analyse and criticise contemporary problems.

Of late the students' unions have come under fire. The authorities consider them to be the major cause of students' upsurge and indiscipline. There is a very strong lobby that the student unions, usually captured by unthoughtful students create a rumpus on the campus and hold the university to ransom and, therefore, the unions should be banned or be hedge-bound in their composition and functions. Here neither the premise nor the solution is correct. Even there is an inconvenient suggestion that police-force be set up on the campuses. It may be only a palliative but not a permanent remedy. Rather, it may act as a red rag to a bull. Why can't we ban the agent provoceutors and political hirelings ? Why can't the administration come closer to students. The administrator is out of touch with the young. Why can't the Vice-Chancellors have a monthly dialogue with the executive committee of students' union to inspire confidence and sort out the problems? Although, by and large, indiscipline in the institutions of higher learning mirrors the conditions of society, an incisive analysis would reveal that the root cause of the malaise is that the Students' Unions became the arena of political parties, which unfortunately look to the immediate and do not envision the ultimate. The politicians including a few politician teachers exploit them for their own ends.

The college and university students are adolescents, wanting outlet for their inner urges. They are emotional and if not appropriately tamed, become prone to be trigger-happy to spark off agitation on grievances—real or imaginary. But it is universally conceded that the large majority of students are interested only in pursuing their studies and it is a small body of students who lead the rowdyism. The two-pronged solution can be that the basic causes of student unrest be not only identified but immediate and appropriate redressal of their legitimate grievences be made before they assume dangerous dimensions. The teacher, therefore, must play his crucial role in this onerous responsibility. He occupies an exalted position (not in material terms but in holding lofty ideals) and can generate in them the awareness for their legitimate domain of demanding relevant syllabi, right courses of study, just and reliable evaluation; the augmentation of cultural activities and ancillary facilities. He should vigorously resist efforts by pressure groups, wishing to control the character and tone of academic programmes. Why can't we wean the students from fighting over non-issues like the postponement of examinations. While the students should exercise self-discipline and not go haywire in representing their difficulties, the teachers should pay more attention rather than indulge in petty politics or remain immersed in raising their own image for getting more assignments from outside. Both the students and the teachers ought to cultivate a sense of belonging to the institution where they get the benefits.

There is nothing basically wrong with the young people. Let us not waste this rich human resource by our biased thinking. The students are a propelling force in any kind of change. Why do we not recognise that only the young can be truly moral because their values have not been contaminated by experience? A society is sustained by a core of values that lies at the heart of its way of life. What is urgently needed is pragmatic approach by directing their energy to constructive educational activity by providing them forums at various levels to encourage freedom of speech and actions, permissible under democratic and academic norms. Let us not limit their content of thought but may limit their lines of action, whereby they violate or break the rules, which their representatives have themselves made.

Falling Standards Irrelevant Curriculum

The fourth crisis and the greatest sore factor is the falling academic standards and irrelevant curriculum. Unfortunately, the university of today in India is experiencing something quite different—more introspective, overshadowed by anxieties over students' negative activism, teachers' smug indifference, Government's increasing control, politician's irritating interference, coroding autonomy and pre-occupations with the search for funding. All these factors have adversely affected the educational standards at the college and university level. The explosion of numbers in higher education with no corresponding increase in the staff and material facilities (buildings, laboratories, hostel. play-ground etc.) have resulted in ever-increasing incidence of failures, dropouts and third divisioners. Generally, the failure rate at the first degree level is 50%. At the post-graduate level 70% in arts and commerce and 40% in sciences are placed in the third division.

University education is in most cases a mass monologue system and many of the affiliated colleges are pseudo commercial mills. Continuous decline in standards is all pervading and runs through teaching-learning techniques, in intercommunication of the teachers and the taught, in the quality of text-books, in the type and content of our evaluation system and in circumventing the scoring procedures. The switch over to regional languages as medium of instruction has brought down the standards as no good text-books are available in those languages.

With a few notable exceptions what is taught and what is learnt has little relevance to the academic and intellectual demands of higher education and the national and development needs of our society. By and large higher education today stands as an immobile giant, insensitive to the emerging needs, demands and aspirations of our renascent nation, having in-built resistance to innovative experiments and unresponsive to the challenges of today and tomorrow. Of course the giant keeps growing in size. Toffler in his FUTURE SHOCK is not incorrect when he says, "What passes for education, even in our best schools and colleges, is a hopeless anachronism." The products of our higher education are not only unemployed, they are in a large measure unemployable because of their irrelevant academic credentials. The climate of groan and grumble prevails. The students complain that the teachers are apathetic towards them. The teachers have the grouse that the society has given them a raw deal in socio-economic esteem and the students have postures of indiscipline. The parents are sore at the exorbitant cost of higher education and lower pay-off. And then they face formidable admission problems, especially in professional technical and vocational institutions, some of which have the scourge of capitation fees.

The growing consciousness among the students to realise their individual and social aspiration in conformity with their potential requires that the curricular offerings should equip them to accept the changes and face the challenges of the technetronic age and get adjusted in the main stream of national life. They consider higher education as a route to, and an instrument of social and occupational mobility and an indispensable asset for status employment. Through this they wish to secure social justice and social prestige. Being aware of the complexities of modern life they wish to have the type of courses, which besides giving knowledge, make them creative members of the community. Presently they feel that while they grow old in years on the campus they neither grow intellectually alert, nor proficient in any professional pursuit nor do they become competent in the art of living. The students, as change agents, will not be capable of bringing any change unless they are strengthened by relevant knowledge, essential skills and desirable attitude at the higer education level. Attention now needs to move towards advancing human capability in 'toto' so that a student not only increases his self-fulfilment but is also imbued with the spirit of the obligation to serve society in more fundamental ways. The university education will have relevance when it produces integrated personalities—men with keen intellect, fitting them for decent occcupation in our multiple society, with deep moral sense and with wide economic and social awareness.

In this direction the U.G.C's scheme for establishing lead colleges in every district by giving special assistance to selected institutions so as to raise their academic calibre will go a long way in checking the deterioration in the quality of education.

In case of universities also the Kothari Commission floated the laudable idea of creating major universities, which would become pace-setters for other universities. The idea, however, did not click because of status controversy. However, if one or two universities are selected as "Lead universities." the others might be infused with the spirit of emulation.

Denigrated Teaching Heterogeneous Faculty

In all this drama of falling standards the accusing finger points to denigrated teaching and heterogeneous faculty which, by and large, characterises to be neither harmonious nor professional. This is another crisis in the university. The higher education has the threefold purpose of teaching, research and evaluation. All these three are important in their own right but more important is teaching, which enables the maximum people to enter a respectable career. The situation obtained today, however, is that the teacher in the university remains entangled in the "publish or perish" dilemma and the instructional obligation remains relegated to his secondary role. The reason for this is not far to seek. An individual with the longest list of publications moves rapidly on the promotion-line, often with little reference to his ability to teach while the person dedicated to teaching arouses, sustains and perpetuates students' interest by his inspirational teaching and motivates them for self effort, may be cutting himself off from certain avenues of success.

The university regards the professor first as some one, who discovers (overtly or covertly) new frontiers of knowledge through research, thus under-valuing effective teaching and over-valuing the "publish or perish" cult. In the words of Carneigie Higher Education Commission, "The professor who publishes earns more, gets promoted faster and works at more prestigious institutions. The true professionals then are, those professors, who do scholarship and publish and not those who primarily teach." The professors, therefore are generally reported to be as wanting time for research or to teach the techniques of research to post-graduate students. At Stanford University, in California, "Only 20 per cent of the faculty believe that teaching greatly influences advancements, while 51 per cent wish it did not. At another university, 4 per cent rated teaching as very important for their career, but ten times that percentage wished it were."

This, however, does not imply that research is bad and be given inferior status. Rather, research is imperative and fundamental and great resource for feed-back to stimulate further thinking. It also gives clues for reinforcement to enrich the teaching process. Quality teaching and contact with larger number of students (instead of contact with a few research scholars) is more important than the trivial published work. Kothari Commission aptly avers:

> "One of the most important reforms needed in higher education is to improve teaching and evaluation. Even though an institution has established its goals, has formulated an acceptable curricular programme and assembled an able body of teachers, it is the relationship between students and teachers—the actual day-to-day educational experience—that constitutes the measure of achievements. The existing situation in higher education during the academic year broadly alternates between slackness and strains-slackness during the session, strain at the time of examinations. The ideal of academic excellence is confined to a minority of teachers and students who have to keep it alive against the downward pressure of discouraging circumstances."

Education is no longer concerned only with the imparting of knowledge. It is also concerned with the awakening of curiosity, the development of proper interests, attitudes and values as well as the building of skills like self-study and critical capacity in order to be a responsible member of the democratic society. In generating these virtues, an inspiring teacher has a vital role. In the words of Ryans, "Good teachers pave the way for an enlightened and productive society."

The instructional technique at higher levels of education have remained a one-way traffic, teachers speaking from the lectron and the taught listening indifferently under the duress of shortage of lectures. While vitality and realism are being infused in the revised curricula, the techniques of instruction continue to be largely traditional—"chalk and talk" method. The teachers concentrate more on the subject-matter (if at all) and too little on the psychology of the learner Honourable exceptions apart, they fail to motivate the students by arousing his interest, sustaining it and perpetuating it. The role that motivation and aspiration play in students response is hardly recognised. That the educative process is a cooperative enterprise and a bi-polar process has been completely ignored. There is either the domination of the teacher or the domination of the subject. Such a process leaves the pupils high and dry having no motivation for self-effort and having no intellectual challenge, resulting in his falling back on cheap notes, refresher courses and guide books. This, however, is true of social sciences and humanities more than in natural sciences. Our standards are so low that our post-graduate degrees are comparable to the first degree in educationally advanced countries. What have we done to close this gap between our universities and universities in educationally advanced countries. Rather, this gap is widening day by day.

Candidly speaking, we the faculty, being neither harmonious nor professional cannot absolve ourselves from the responsibility of denigrating teaching and lowering the standards. Majority of us do not have homogeneity in teaching and learning modes and modalities nor are we professional in the real sense of the term in rendering any guidance and counselling to the students, who seek, strive and stoop for it. Those of us, who are sincere are in minority. Dominating the scene are those who are flippant, whose creed is power-polarisation or nourishing personal tantrums and antagonisms. Out of professional jealousy, they criticise each other's work and performance and nurse frivolous grouses against each other. Such people are steeped in the morass of groupsim and infighting. Generally they are the powers-to-be in Teachers Unions.

In principle and ideology, I believe that the teachers unions are *sine qua non.* The teachers should have a forum for ventilating their genuine grievances about the raw deal given to them in respect of socio-economic conditions and professional facilities, which their counterparts in other countries or persons, having similar qualifications working in non-educational institutions enjoy. All that I wish is that the unions should have a twin-purpose of exercising quality control on academic programmes and serving as custodians of teachers' interests (like combating the nagging attitudes of managements and incursions of politicians, as well as seeking for them promotional avenues etc). Presently we find a dichotomous situation. Such academics as are not sure of themselves or of their credentials seek the prop of the unions and the politicians while the academics of proven merit have neither the time nor the need for the union. Unfortunately the creative unionism of teachers has become militant trade-unionism. Unacademic politicians try, with an alarming degree of success, to politicise the campuses and brow-beat the academicians. Thus the deligent suffers with the malingerer.

The university teachers, being intellectuals, are capable of independent thinking, why do they need the prop of the politicians, who by and large, have indoctrinated rather than free-thinking. If the teachers are authentic intellectuals, they don't need motivated thinking. If they are not intellectuals, they need not be teachers.

The teacher is the kingpin. On his positive thinking and optimistic outlook depends the success of his teaching-learning programme. But the kind of model that the university or college teachers projects to students is anything but commendable. Unfortunately he has forgotten his role of acting as friend, philospher and guide. Professional "elan" is absent in him. Very few of them are keen to update their expertise and enrich their experience by participating in seminars, orientation and refresher courses. Teaching is a profession in which both recognition and response are promised. Why don't we enjoy the excitement of experience in terms of new knowledge, new skills, new problems solved and new horizons sighted? Presently, we are in a state of passivity and our imagination focusses not on the challenges and the possibilities of the future but on the present unpleasantness and upsurge of students. The teacher today is euphoric and despondent, while he should be buoyant and flamboyant having lofty sense of social responsibility with a view to shrinking the psychological distance between the teacher and the taught—one way of which is to humanise teaching, which a teacher of prodigious learning and impeccable character can do easily.

Why do we not recognise that students are individuals, each one with his own share of virtues and limitation, and each with hopes and ambitions, coming to us to develop. This high-task requires teachers of pragmatic ideals and apostolic nature, who discharge their duty with breadth of vision, devotion, sympathy and consideration. Let us heed the counsel of Mathew Arnold that "what attaches men to us and gives us hold on their lives is not the machinery we employ, but the spirit we are of. Neglect of good teaching would be perilous for the future of higher education.

The effective and firm academic leadership of the teachers can check the exploitation of the students by the vested interests. The teachers proficient in their subjects, fair and just in their approach can win the students. There is no dearth of such teachers.

All that is needed is proper recognition and encouragement of the work of teachers by the government and the managements. This fine corps of teachers should be developed as an effective force against the disruptive tendencies of those, who tarnish the image of the academe by grinding their vested interests.

With a view to developing the fine corps of creative teachers, the UGC, taking the cue from educationally advanced countries, has vociferously commended (17.2.1979) the principle and policy of university and college teachers' appraisal and rating. To this effect they have issued a guideline proforma, kindly permit me to share the raison d'etre of much needed and long-over-due innovation of an in-built system of assessing the teachers.

Assessing the Teachers

Of all the factors, influencing the quality of education, competence and character of teachers are the most significant. Education is the instrument of change, it is the teachers who, figuratively speaking, wield the instrument. Except by teachers, committed to the ideal of academic excellence, the goals of university or college education (no matter how carefully phrased and realistically conceived) can never be attained.

How can we do it ? In searching out what might be done to improve the instructional technique, we are inevitably drawn into the generic question of "motivation" and involvement of students. Have we ever assayed our instructional techniques in terms of students' reactions ? What comments do those students who pass make? What are the attitudes of students towards us who failed to obtain their mark ? What changes or adaptations would they suggest? In a survey conducted in some colleges of the university of Delhi it was found that most teachers preferred to unload themselves during the teaching period. Queries by students remain suppressed. Tutorials very often turn into lecture or recreation classes.

The teacher's skill of motivation, his command over knowledge, techniques of approach, the interaction of these three variables and the avoidance of "plateau in learning" are the cardinal factors for drawing-in the students. Presently the educative process is circumscribed to lectures in the classroom, craming at home and vomiting out this material in the examination-hall. This ironical situation has to be obliterated by making "writing and checking work" an integral part of day-to-day teaching. The most neglected aspect in the educative process is 'writing by students, and checking by teachers'. Some of the new strategies, to supplement the lecture system, are—discussion technique, seminars, preceptorials (teacher led discussions), tutorials (student operated situation), Dalton plan (assignment system) and the intensive use of mass-media of communication.

Lecture system has its advantages when a good teacher pulls together his material in a meaningful way, guides his pupils by means of emphasis, synthesis and contrasts, alerts them to the forthcoming new material, pricks them into wakefulness that there is much for them to learn and treats the students as "Like-way-farers", travelling the same path together in the common pursuit of knowledge and life.

How is the teacher encouraged to keep on his intellectual toes ? Like the Red Queen in Alice in Wonderland the teacher must run faster to keep up with his own field. The job of a teacher begins, not ends, with his appointment. He should often question himself. Is his teaching generally vigorous and inspired or is it characterised as "routine", "mechanical", "listless" ? Is he doing research as a feedback to sophisticate his knowledge and technique ? Does he show initiative and imagination ? A good deal has to be done for good teaching and significant research. Here arises a question, should the university (college) in any systematic way seek to evaluate the performance of teachers ? What should be the procedure for doing this ? Who makes actual evaluation ? What materials should become a part of such evaluation ? Is it advisable to obtain from students some reaction of the classroom performance of teachers ? (This is not uncommon in the United States). What are the 'pros' and 'cons' of such an exercise ? should a teacher not apply self-assessment technique to judge his effectiveness by using a standardised check-list or rating scale evolved by experts ?

Increasingly recognising the value and importance of the evaluation of the work of university teachers, lot of meaningful research and successful experimentation has been undertaken in the United States and other educationally advanced countries. In America a number of self-rating scales for teachers and indicator scales of the quality of teaching have not only been evolved and standardised, they have also been universally applied and accredited as effective and efficacious instruments. Similarly fundamental studies have been undertaken on "classroom interaction analysis".

"Analysing teacher behavior" and "Interaction in learning." Books have appeared on subjects like—Teacher Self-Appraisal A way of looking Over Your Own Shoulders, Teaching with Feeling, Developing Teaching Competencies, should Students Evaluate Teachers? Specialists like Flanders, Amidon and Hunter have suggested ways in which teachers may improve their interactions with students. In (1976) an International Seminar on "University Today", held in Yogoslavia, the topic "Assessment and Evaluation of the University Teachers" received a sharp focus. The discussion culminated in a consensus on a three dimensional (scientific, pedagogic and social) assessment and evaluation for the work of university teachers. While in several of the foreign universities the concept, the philosophy and the practice of assessment and evaluation of the university teachers is fast catching the imagination and implementation, in India this vital idea is being subjected in polemics and the university elite is still hibernating and levitating over its acceptance.

It need not be over-emphasised that the evaluation of the work of the university teachers is the only important means to maintain the university standards at a level which meets the needs and aspirations of individual students and also meet the norms and demands of the society. Even if the work of a university teacher is of individual character, in cannot be denied, that eventually it forms part of the collective work of the university. Those who wish the university teachers to be left alone as they represent a specific category of being on "front" for the advancement of society and are thus unanswerable for their acts of omission and commision, have perhaps failed to note an eloquent reality that directly and indirectly every university teacher is being evaluated in his research quality by his peers, in his instructional competencies, by his students and in his social contribution by the society. After all what is the harm if this 'undertone evaluation' is institutionalised and sophisticated to yield better-results. Dr. Amrik Singh, has cogently argued the case for periodic assessment.

"For more than a decade now, a large number of those entering the teaching profession have been unsuitable in many ways. They got into the profession merely because the expansion of education during the last three decades far outstripped the supply of qualified teachers. It would be unfair to accuse this category of teachers of dishonesty a more valid explanation would be that they just do not have the requisite competence. There is another category of teachers who possess the ability but, in the lax atmosphere which pervades most of our educational institutions, they tend to lose interest in their work. Indeed, some of them begin well and work with enthusiasm. But, within a few years, many of them discover that to get on in their profession they have to acquire a different sort of quality. In respect of these teachers, what is required is a different ethos of work. In our colleges and universities the old lackadaisical attitude persists.

At the level of Readers and Professors, the situation is also disquieting. Some of them are good, a few highly competent. But a substantial number are substandard, by whatever yardstick one may measure them. They belong mostly to that category of teachers who, to begin with, were academically sound. Once installed, no one ever bothers to ask how they are performing. There is no system of a periodical review of performance.

The question of academic accountability has yet to be recognised. If incompetent people continue to occupy positions they have attained, it would be idle to expect any real improvement in academic standards. Besides, they will do their best to prevent competent people from getting the recognition due to them. Those who do not measure up to the demands of the job should be persuaded to improve their knowledge as well as their teaching ability. A system of periodic assessment, say every five years, should be introduced."

"Consequent to revision of pay scales, there was an understanding that a code of conduct for teachers would be drawn up to ensure that the work of every teacher should be assessed in terms of his/her academic and professional growth. Unfortunately in this direction, there is smug indifference or a "conspiracy of silence" or an inbuilt resistance".

The requirements of the present day dynamic development of society on the one hand and the scientific technological revolution on the other hand underline the promotion of the onus of meeting the requirements of our fast emerging technetronic society falls on the university teacher, who imperatively requires re-orientation either through self-evaluation or through an objective evaluation by competent experts based of course, on convincing scientific criteria. Let us break the understandable inertia and initiate a start with the "teacher's self-evaluation" through a scientific, standardised, authentic and authoritative Rating Scale designed by connoisseurs in the field. "Self-evaluation" is "elan vital" for a sincere and professionally committed teacher. It will serve the diagnostic and prognostic purposes. Once this is successful, "students" evaluation of teachers" may be tried, provided that rating is judged on the basis of weighted average of the views of sober, reasonable, and intelligent bracket of students and not on the raw opinions of the gullible students.

Corroding Autonomy

The greatest crisis that comes closer to the academic heartland is the crisis of educational autonomy in the universities. For realising the real objectives of a university or for that matter of every sanctuary of higher learning, academic autonomy is the first article of faith. In medieval Europe the universities started as autonomous bodies. The centres of higher learning or universities in ancient India were corporate organisations of learned teachers imbued with the spirit of scholarship and sacrifice. Theirs was the labour of love for accumulating and disseminating learning. The monarchs and rulers patronised men of learning by their liberal financial munificences in the form of cash and land donations. In return they never controlled or interfered with the functioning of educational institutions. The teachers enjoyed complete autonomy in determining the curriculum and in following the teaching methods.

In the process of time there emerged modern nation.

states, which impelled by humanism and democracy, began to show increasing interest in people's education, considering it as a vital factor in the multi-dimensional development of a nation. They, therefore, assumed greater and greater responsibility in administering education from the primary to the university stage. Financing of education by government started in a systematic and regular way. This naturally involved supervision and control by the government and a sense of 'accountability' on the part of educational institutions, which could not be permitted to play ducks and drakes with government money. Some restrictions, rules, and regulations, statutes and ordinances were inevitable for the governance and development of educational institutions enjoying the munificences of the government. In case of universities, however, it was universally conceded that they would enjoy educational autonomy, the government aid notwithstanding, because they are the best judge as to what knowledge is to be imparted and how. The thoughtful educationists correctly aver that it is they who must determine as to what is good, better and best in education. Why should the financing bodies not allow them academic freedom in planning matters educational? This principle is still functioning well in educationally advanced countries where universities enjoy unfettered freedom and are being considered as strong organisations of teachers and students. Their advice is sought by the government and other public authorities. Unfortunately in India, with the process of time, increasing control is being exercised by the outside authority. As a result of too much intervention by the government, the political parties, the vested interests and other pressure groups the real activities of higher centres of learning and research are being distorted. Neither the students nor the teachers are able to concentrate on their main work because of the distraction caused by extra-academic pressures. The powers, which profess to be the custodians of autonomy, in actual practice, they flagrantly violate it and do not appreciate the exact connotation of "autonomy".

The Connotation

The universally accepted connotation of educational autonomy stands for the right of educational institutions, educationists and academicians to carry their legitimate professional activities without interference from any authority, so as to enable them to play their constructive role in society's progress and development through the instrumentality of education. Professional activities include internal administration, curriculum-making teaching methods, evaluation of students, admission of students, appointments of faculty and freedom of research areas. Authority here means, government, politicians, bureaucrats, religious or other pressure groups. In other words the teacher should have freedom of thought and expression, thus ensuring him to hold and express his views (however radical) within and outside the classroom provided he is careful to process the different aspects of the problem without confusing teaching with propaganda in favour of their own particular views (Kothari Commission). Besides being free to pursue his teaching techniques, innovations and research, he should be free to participate in debates on significant national and international issues even when his point of view is different from many others. Academic freedom is a doctrine to keep the enquiring mind away from corrosive influences. Although autonomy is a necessary condition of every democratic institution, a university's concern with this is of special significance as a university has delicate responsibilities for training the young, maintaining and passing on democratic values and for demonstrating how change and stability can be kept in balance. These most sensitive tasks can be objectively realised when the sanctity of academic functions of the university are guarded to enable the university man to make the world safe for intellect. It was the university based research on nuclear structure that led to the discovery of atomic energy with its wide application both in military and civil affairs.

Keeping in view this connotation of autonomy let us cast a look at the university scenario in England, America vis-a-vis India. While in America, England and in several

European countries, the universities by and large enjoy a great measure of autonomy, the universities in India are great victims of too much interference from vested interests. Surprisingly while we borrowed the pattern of higher education from England, we could not establish the traditions of academic autonomy as obtains in England. On account of healthy inheritance long tradition and the force of public opinion, holding the universities to be the most important institutions of a civilized society, the British universities enjoy the highest degree of autonomy (when compared with the universities of the world despite the fact that three-fourths of their income is drawn from the public exchequer). These universities are free in the matter of appointment of faculty, selective admissions, prescribing their own curricula, the mode of conducting their examinations and awarding degrees. Theoretically the British universities have to submit changes in their constitution for the approval of Privy Council. They are also subject to State supervision but in practice these external controls are hardly exercised. By the very nature of their constitution, Oxford and Cambridge universities enjoy far greater autonomy than other universities because while the other universities have both laymen as well as academicians, Oxford and Cambridge, in their administrative machinery, are entirely composed of their own 'alma mater'. In the case of other universities the academic matters are the responsibility of the senate, but it has to have the approval of the Council, which represents founders and financial supporters. The healthy convention of the past centuries, however, prevents conflicts, which are non-existent. In U.S.A. the situation is a little different. There the private and prestigious universities are equally independent and self-governing and enjoy greater autonomy, since they are not subject to supervision by any authority, except their own Board of Trustees. The alumni of such universities have their influence as they contribute substantially to these universities. These universities have their own standards of admission, requirement for award of degrees. Although the Federal Government grants funds to educational institutions, the private universities have been very reluctant to accept such financial assistance for it may mean political interference and curbs on their autonomy. The State universities, however, have more centralised control, since they depend on the State exchequer for their maintenance and development. Though the State can intervene in university matters, it rarely does so. Of course, each State university is obliged to admit all students who have completed their secondary education from a high school of the State. The Board of Trustees of Regents, though independent of the State legislature, are amenable to external pressures. The clashes between the Board members and the faculty are quite common. Even the presidents of these universities have been made to resign on account of conflicts. Teachers have been dismissed by the State if they are suspected to follow an ideology other than desired by the State and if they insist on teaching the content, which they think as right. According to the statutes, by and large, the representation of the faculty on the Board is prohibited, thus there being no communication between the two. Sometimes the Boards act arbitrarily by-passing the President and the academic members.

In the context of the principle of inherent right of universities to enjoy autonomy, we see that the political and bureaucratic overtones in the functioning of Indian universities pervade all along the line. The politicians and the bureaucrats rule the roost, considering their status, privileges and opportunities as normal perks. Barring honourable exceptions student organisations, teachers' unions, the faculty and the members of different university bodies are linked with one or the other political party. As such they often fail to act in a manner to the real cause of education. Over the years the stultifying intellectual atmosphere in the universities is tending to incapacitate the honest, authentic and sincere teachers, who have far too little of that 'zest' and 'elan' which is conducive to academic excellence and research, when they see that the politicians monitor the performance of the universities to serve their own narrow interests. The unscrupulous university personnel remain anxious to seek the proximity of the political and bureaucratic bosses through dubious means. Result-oriented performance and accountability are on the wane.

Why are the universities coming increasingly under the external pressure? Fortunately, we do not have to go far for an answer. One, the internal weakness of the universities themselves, and two too much dependence on the State governments for financial support. Internally, a university in India, by and large, remains a house divided in itself. It does not present an image of commitment to the promotion of knowledge. As such it is bound to knuckle under pressure from the non-educationists. It is correctly felt that within the university, the autonomy is being corroded because of the pathetic indifference on the part of the decision-making bodies, which do precious little to exercise their right given to them under the university Act. If at all the levels (Head of the Department, Dean of the Faculty and Academic Council, the Syndicate and Senate), the powers vested in them are utilized in efficient functioning of the academic affairs, the extraneous vested interests will not be able to have any sway. Military efficiency and discipline exemplify how non-interference works wonders. In the army they strictly adhere to the chain of command. The disruption that would be caused if Generals sent their commands directly to the N.C.O's can easily be imagined. In fact one of the benefits of India's defeat in the 1962 clash with China was that it put a halt to political interference in military matters. All Defence Ministers since then have wisely kept out of intervening in issues that should be rightly handled by the men in uniform. If a university has sound academic leadership, political activities will find it difficult to disrupt life on the campus. Even if some of them succeed such disruption will be short lived.

Another reason as to why complete autonomy in Indian situation is perhaps not feasible is because of their being tied with the apron string of financial assistance from public funds. While in other countries, the universities have their own sources of income, or large endowments, the universities in India have primarily to depend upon government financial support for their maintenance and development. With the expansion of higher education in free India, the number of universities have increased six-fold in the past 32 years. The number of colleges have risen from 400 to 4,000 with an enrolment of 4 million students. This phenomenon has over stretched the resources of the State governments, which have already many other compelling demands of the society. The private colleges receive up to 95 per cent of their expenditure as subsidy and still many of them are labelled as sick colleges because they are neither viable economically nor academically. Their own resources of income from donations have dried up and they cannot be closed because of vested interests.

Entire dependence on the public exchequer automatically increases the government's control and surveillance on their functions. May be ironically, but it is said that the universities have become so much tagged to the government that they have been virtually converted into the departments of the State governments.

The cult of politicking is germane in the very mode and modalities of appointing Vice-Chancellor. Constitutionally, the appointment of a Vice-Chancellor is subject to nomination by the Chancellor, but more often than not, the appointments are politically motivated and subjected to pulls and pressures of the State government. Rarely an academician of eminence is invited to this august office of creative responsibility. Recently the trend of bringing bureaucrats as Vice-Chancellors has further tarnished the prestige of the universities and has given a strategic set-back to the academes and the academics. It is sabotaging the academic credibility.

The pernicious practice of political and bureaucratic interference in corroding the authority of the Vice-Chancellor starts from the very inception in his incumbency. He cannot function academically and properly. As a result, three trends are visible, One, even angels fear to tread. An honest, upright, sincere and real academician does not dare come near this office and if invited, he declines the honour, since he knows that he will become meaningless blob by not being able to exercise legitimate autonomy. Two, some daring academicians accept the office but soon on account of political pressures are constrained to adopt defensive postures and connive at mal-functioning of the system. Deliberately they seek and get political patronage to survive by toeing the accepted line and playing a second fiddle. Their style of governance is cramped. Perforce they have to build up a following of their own to stand the onslaughts of unscrupulous persons represented on various bodies.

Nevertheless, that while pleading the case of autonomy it is not suggested that the thoughtful participation by responsible public men should be banned. All the ills of our universities are not the creation of politicians nor are they to be traced to a wrong set of policies and priorities of the government. There are several important tasks, affecting academic life which are simply not performed by university men in an appropriate manner. Let us not concede that the university dons and academicians are always on the side of angels and as such adopt resolutions in favour of the true, good and the beautiful. They are not infallible. They can also err and are liable to be rectified by objective non-academic representatives of the public. Autonomy is not incompatible with coordination and cooperation. The universities want and should be autonomous from external influence, from imposed authority and improper frequent directives but they should not remain alienated from the needs, aspirations and views of the lay public. The autonomy, which engenders authoritarianism and rigidity and takes away accountability is clearly an over-rated virtue. It is not synonymous to academic licence for doing whatever suits and throwing to the winds all checks and balances legalistically laid down. Again, autonomy does not come through legislation or statutes. It has to be earned and not begged. It depends upon creating traditions and conditions, whereby intellectual and moral integrity remains the cardinal faith of the university men. It is not something mechanical. It is an attained value. In the words of Kothari Commission, "the universities should be governed by one consideration

—their commitment to truth in all fields of activity. It is then that the universities will have not only self-respect of society and government but will also play their proper role in the nation. The price of university autonomy is eternal vigilance on the part of all who are involved—the administrators, the faculty, the student community and much more on generating public opinion, based on the conviction that universities, which maintain intellectual integrity in the fearless pursuit of truth are indisputable bulwark of freedom and democracy.

A university should grow and develop from its internal dynamics. Internal discord and lack of harmony necessarily invites intervention from outside—whether it is government or political party. Political interference occurs when there is vacuum created by academics, who should have close introspection. Similarly, if political parties could establish such an understanding that whenever any serious manifestation of students stir takes place, they, instead of fishing in the troubled waters would get together to tackle the problem and suggest solution, it will be their yeoman's service.

Over the years, the educational autonomy has gone haywire. It must be resuscitated. The U.G.C., as the custodian of this inherent right of the universities, should, in collaboration with the inter-university Board and the government take positive steps to restore and safeguard the norms and nuances of autonomy through well devised accretions for developing an inbuilt system to preserve the autonomy. It should have two pronged operation. One, universities to be free from extraneous and external pressure and two, by encouraging and promoting autonomy within the university in the sense that the teaching departments and colleges be free to sort out their own problems.

Restoring the Sanctity of the Campus

A million dollar question is, how to restore the sanctity of the temples of higher learning which has been vastly desecrated by the devotees and largely by extraneous interventions. The prevailing image of the Indian universities seem to mock "Newman's idea of a University," whose essential character is to be reservoir of free enquiry and criticism. It must preserve true knowledge, discover and promote the new truths for the benefit of the society. Fortuitously, most of the academicians have become careerists, looking forward to outside assignments at the cost of their responsibility toward the students, the profession and the society. In their striving for membership in the international world, the Indian university has lost its relevance to the Indian genius. Our academicians usually appear as defenders of the *status quo*. Their researches, by and large, are pedantic, while the technetronic society demands value-oriented research, teaching which concentrates on fundamental issues and interaction with the larger community. Let knowledge and social awareness replace pedantry and careerism.

The academia today in our country is in worse shape than it was a generation ago. Despite the U.G.C's liberal grants only 20 per cent universities are developed. The achievements have been totally disproportionate to the investment. The Kothari Commission had alerted that of 2000 Colleges (then existing) over 1,000 were non-viable in terms of enrolment, staff and revenue. The proliferation of substandard educational institutions in recent years has meant a callous wastage of the tax-payers' money. The rapid increase in the number of colleges is generally due to political rather than educational considerations. In our country, the legislators, by and large, make it an election manifesto or a prestige issue to sponsor a college at their native places, notwithstanding the existence of several colleges in the neighbourhood. The State government yields to the pressure. It is not obligatory for the State government to seek clearance from the U.G.C., which is an appropriate authority to approve or reject on the basis of its judgement of their financial viability and academic potential. Neither the policy of open admissions nor the imperatives of equalising educational opportunity can justify the existence of nearly 40 per cent of the country's colleges. These are luxuries in a sector where there is constant wailing over the shortage of funds. Realising the abysmally poor standards of higher education, the U.G.C. has vociferously insisted on a 5-year moratorium on the establishment of new colleges and universities. The malaise adds further to the unplanned proliferation of faculties and seats in higher education, thus putting strain on the existing facilities and finances.

In consequence thereof, the mediocrities have been catapulted into higher positions in the academes and the vital tools like research, teaching and evaluation, which are responsible for standards have got blunted and effete. The innovations go awry, since the human material called upon to implement them lack sensitivity, which the new obligations demand.

"A university is, or ought to be, the arsenal from which intellectual weapons can be drawn", wrote Max Weber. We have converted our universities into arsenals allright, but the weapons stocked there, instead of being employed in intellectual combat, are being used in mauling the Vice-Chancellor, occupying his chamber or setting it on fire in rampage, creating fear psychosis on the campus and hijacking buses outside the campus. Far from being temples of learning and centres of scholarship, most of the campuses are venues of dharnas, chain, hunger-strikes and slogan-shouting by self-seeking politicians. Academic excellence or even honest education has become a rarity.

The universities have become too politicised and too far removed from realities. The political interference is wrenching out whatever efficiency remains. There is no dedicated leadership or accountability. The performance of the personnel evokes little esteem from the public. The increase in salaries (though not in absolute terms) has not brought commensurate increase in merit, calibre, discipline and integrity. In all this campus drama, the university administration cannot be totally absolved from responsibility. The legislative body of the university, that is Senate is most complicated and diffuse. It takes little initiative on most issues and usually dittoes the proposals submitted by other bodies. The Syndicate is without doubt the most important executive body, since it meets fairly frequently and has more or less compact membership. However, since the Vice-Chancellor is the ubiquitous person and is able to establish his hegemony, the powers of the Syndicate also remain limited. Elections to various bodies do take place but largely on unholy terms of politicised party system. Our universities are steeped in conservatism and unlike their counterparts elsewhere, have created a long tradition of quiescence, thus becoming islands of passivity and irrelevance rather than the centres of ferment and innovation. Their tradition-bound system of governance, too much dependence on bureaucracy, policy of centralised decision-making are great impediments in changing their character to suit the emerging Indian genius. How unfortunate it is that our universities have not developed any tradition or sense of autonomy because of their too much reliance on government funding, which naturally implies government's directing its affairs sometimes even by bringing in extra-academic considerations.

Nevertheless, for restoring its sanctity it is useless to apportion blame between Vice-Chancellors, the Faculty, the students, the administrators and politicians. Facing all facts squarely we must think of forthright and sensible solutions, not esoteric but academic. There should be a quest for an ideal that helps us to live more fully and creatively and to expand our dignity, self-direction and freedom. The creation of institutional and intellectual forms appropriate to the emerging Indian situation is imperative. The usual demagogic methods will not be successful as scholarship is based on the aristocracy of merit and the meritocracy of knowledge. We must build up traditions which can protect both academic freedom and autonomy and insulate them from over and insidious outside interference, while at the same time, making them responsive to the needs of a developing nation.

Whitehead once said "The growth of universities in number of institutions, in size and in internal complexity of organisation, discloses some danger of destroying the very sources of their usefulness, in the absence of a widespread understanding of the primary functions which universities should perform in the service of a nation". Unless one wishes to dismiss this idea as too idealistic to be implemented, it might be worthwhile pondering that restoration of high standards of academic excellence and learning is the glorious hallmark of a university, where education has to be related to the special requirements of our country in its present political, social and economic development.

All these crises point out that today the most imperative task of university is quality control in teaching, research and examination. The schemes sponsored by the University Grants Commission in this direction hold out hope and promise. The Faculty Improvement Programmes in natural sciences, humanities and social sciences, the ongoing exercise of restructuring of syllabi, the inception of exclusive college development councils in the universities and the liberal provision of incentives for the promotion of research, if fully exploited, will take us long forward. In restoring the sanctity of the Campus, the teachers have the vital and crucial role.

3. The Denouement

In my previous, lectures, I have unfolded the drama of the issues and problems of different configurations of education. Now I turn to the denouement of the drama by examining the attributes of education in technetronic society, the importance of ecological approach to education and the needs and hopes of tomorrow.

Attributes of Technetronic Society

With man's unprecedented control over space, time and distance, the world has ushered into a new age, rightly called the Technetronic Age, wherein polity, economy and the social-cultural milieu are being shaped not so much by tradition as by the impact of science and technology. Technological innovations in agriculture, medicine and industry, for example have bordered on the miraculous. These successes have engendered a faith that in science and technology lies the solutions to today's problems. The intense application of the scientific and technological knowledge, directly and indirectly, has entered into our bones and marrows and is affecting change in all aspects of individual and societal life. Science in the service of man has brought cataclysmic change in him and his environment.

From the individual point of view it is averred that in the dawn of the next century "man will increasingly possess the capacity to determine the sex of his children, to effect through drugs the extent of their intelligence and to modify and control their personalities. The human brain will acquire expanded powers with the help of computers, as automobiles have accelerated man's mobility". The medical researches will increase the average span of man's life to more than 100 years. Such an individual will enjoy the benefits of electronic gadgets at home and will have social and occupational mobility, commuting from one corner to another in his own country and if resourceful to other countries to realise his cherished aspirations. The advancement of cybernetics and automation will revolutionise his working habits, leaving him much leisure time to be utilised well or ill, as warranted by his mental make-up. This, however, will necessitate 'education for leisure'. Besides being achievement-oriented, the society will become recreation-minded society.

Socio-cultural Profile

With the transformation of the agricultural man into agro-industrial man and the agro-industrial man into technetronic man, the society will automatically be technetronic society, whose citizens will be, by and large, inclined towards urbanisation, preferring to live in man-made environment rather than living in the scenes, sounds and colours of natural surroundings. The impact of mass media of communication audio and visual) as well as computers will create an extraordinarily interwoven society, electrically interacting, sharing most intense social experiences and promoting far greater personal involvement. The increasing use of home-video-tapes, home-operated lenses, closed channel programmes,transistorised radio and television will become intellectually an enriching source of society's overall cultural growth. Through these the people will become more and more intensively aware of their deprivations. This awareness will gradually attenuate them to remove the deprivation, thus bridging their cultural, psychological and social gap. The cultural change will spur accelerated education and emancipation of women, who will enter into all sorts of professions, fight against inequalities and assert their rights. The youth will develop innovative character. The scope of self-fulfilment will increase. Thus will emerge a socially creative and individually gratifying society which will have a constructive role to play. There will be more harmony, equality and social welfare. The growing capacity for calculating instantly most complex interactions and the increasing availability of bio-chemical means of human control will increase the potential scope of self-conscious direction and thereby the will-power to direct, choose and to change. The ability to reduce social conflicts to quantifiable and measurable dimensions will lead to problem-solving approach to social problems, stresses, strains and issues.

Increased per capita income, resulting from better education will create among the people a wave of interest in the cultural and humanistic aspects of life, in addition to the hedonistic pre-occupations, which can serve as a social valve for reducing tension and frustration. In the technetronic society, the scientific and technological knowledge and its application not only changes the individual and the society, it does have effect on the political and economic aspects.

Political Sphere

Despite our vociferous claims of living in Sovereign secular and socialistic democracy our masses have remained passive and virtually politically alienated. Their representatives in the government have not clicked the way they should have. They are to be activised increasingly so as to ensure their real participation in the governance of the country. The necessary political awakening does not accrue from the provisions in the Constitution alone. The needed change will come when the political system assimilates scientific and technological ingredients. The accelerated dissemination of information and the adoption of techniques of coordination will enlighten the masses. The full utilization of the communication media and computer techniques will enthuse a sense of responsibility to the lower levels of the government and society. This will create a climate of transferring many functions of the Central Government, to the State and local governments, thus involving the people and releasing time, energy and finance of the Central Government to utilize them in a better control and national policy direction and for tackling the fundamental problems of regional imbalances and disparities. Such a step will provide greater local participation in more important local decision making.

The principle of national coordination and less centralisation is conducive to democratic traditions. This will blur

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sharp distinctions between public and private sector, thus allaying the fears of the latter about their absorption by the former. An effective coordination will mean necessary discussion and reflection, catering for the greater good for the greater number. Electoral procedures will improve closer consultation between the public and its representatives. Participatory democracy will emerge through a progressive interaction of social institutions and the government. The virtues like political wisdom, social responsibility and new techniques of management will ensue. The political parties will commit to the national issues instead of local, regional and other parochial interests, thus forming their parties on the basis of their attitude towards the problems of modern life. For example, the humanists and idealists may form a party against the pragmatists and modernisers. The values of science applied to the economic fields will create more rational economy.

Economic Order

There is no divine dispensation that one section of people may live in squalor, while a small segment overeats and over-spends. In the technetronic society economic power will not be concentrated in great entrepreneurs. It is bound to have a wider spread. A network of small entrepreneurs is a 'must'.

Our agricultural society uses muscles and animals. The shift to industrialisation as a complement to agriculture switches us to machine operation. In the technetronic society, automation and cybernetics replaces individual operation of machines but opens a vast vista of employment avenues. The employment phenomena, however, will remain dominated by issues like psychic well-being of workers, skill obsolescence, security, leisure and bonus and profit-sharing. The plutocratic pre-eminence will continue to remain under sustained challenge. The technological developments will require more and more planning, the planner eventually displacing the lawyer as the key social legislator and manipulator. The planning will be done with greater emphasis on defining goals in the light of social needs.

Education In, And For Technetronic Society

For the realisation of the norms of the technetronic society, the most vital and crucial role of taming the shrew (using the Shakesperean phrase; here meaning harnessing science and technology for preserving mankind rather than destroying it) will be played by education. A meaningful change in education (aims, content and techniques) is sure to be a catalyst for reform in all areas of national life and in generating national values. Education will provide the frame-work as well as motivation for directing the change and for timely rectifying the ills, which creep in unwittingly. The policy processes and patterns of education will have to keep abreast with the galloping scientific discoveries and several other ongoing sophistications. An educational model, which recognises diversity of human interest and caters for it will be accepted. In the technetronic society the pursuit of knowledge requires more sophisticated dissemination. Professional education becomes necessary as the application of knowledge becomes as important as its pursuit. *Inter alia*, the chief aim of education in the technetronic society will have to be education for social advancement.

Among the different configurations of education, universal mass education upto the age of 14 or 15 years is the first "must". On this depends the enlightened and responsible citizenry. The whole edifice of education has to be built on the strong foundations of this stage of education which has to be self contained. Here besides teaching the pupils a popular language, functional arithmetic and some socially gainful craft, the social "awareness" has to be created through "environmental studies" and by teaching them history, geography and scientific culture. That time in the technetronic age is round the corner when some of the burdens of initial education will be shared by the home-based education through televised electronic devices available at home. Beyond this essential 'core education' for all, advanced training should be available to all who have the basic talent and requisite aspiration.

The secondary education in a technetronic society should serve the twin purpose of producing technicians, who with some post-secondary training, become the work-force for manning middle level technological jobs as well as to prepare a good segment of them to pursue higher studies for middle level leadership positions in various fields of occupation. Of course, the most brilliant among them, equipped with higher academic credentials will occupy positions of leadership and responsibility.

Technetronic society is a pluralistic society, in which groups differ significantly and require different kinds of learning experiences. There is demand for institutions suited to contemporary interests and needs. The occupationally pegged diversity is socially necessary. The more advanced, the more technical, the more service minded, the society is, the more of such specialisation it requires. The students want specialisation in order to win out in the hard competition for jobs, income, status and so forth. The schools, colleges and universities must offer alternative models of career and roles. Gone are those days when students either adapted themselves to the offerings and demands of the institution, no matter how mindless or unrelated to their lives, or they dropped out. Not now. The young men and women today clamour for a different kind of learning and reject the mystifying theoretical ideologies in respectable academic disciplines. The educational programmes in technetronic society, therefore, need to be related to the man/woman power needs. Except the ideologically infested people every one knows that all education has career implications. Our expanding agro-industrial technological society needs a steady stream of manpower.

The university at one time, during the halcyon days, was a great social institution, on which the political leaders leaned heavily for literate confidants and counsellors—a rare commodity those days. Hitherto, it has remained divorced from reality. It must, therefore, make a grand re-entry into the world of action. Today the academia, instead of remaining an ivory tower, must become a "think tank" for sustained political, socio-cultural and economic innovations.

It should produce a new breed of politician intellectuals, who are prone to draw on the most expert, scientific and academic advice in the development of their political programmes. It should stimulate public awareness and conscientisation of the value of expertise. The intellectuals, who are, by and large, humanists, ideologically minded, organisation-natured and application-minded, must play the role of proferring social critiques. The experts and specialists, either by direct involvement in government undertaking or in general should provide overall intellectual integration for disparate actions.

The higher education is an integral segment of the entire social system. In order to comprehend their lives in the social system, students require exposure to its processes, problems and new issues (say health, ecology and pollution, housing, planning and communication). The teaching of which will bridge the gap between faculty and students.

Education of the Talented

Equality of educational opportunity for all is perfectly in tune with democratic spirit, but adaptation to teachnetronic norms and nuances requires the identification, recognition and utilization of the talented persons. The "mobilisation of the ablest" is imperative if we mean progress and prosperity in the technetronic society, which requires enormous talent and great measure of philosophical wisdom and social responsibility to assimilate and consolidate the emerging changes in every facet of life. Do you not agree that if you wish to teach a potential nuclear physicist, then he will need to be taught more than those who have to join ordinary work-a-day world? No one will deny that on every possible ground those of outstanding ability should have the best education. Therefore, the phrase "equality of opportunity for all" should be complemented with the phrase "and special opportunity for the singularly talented few" in order to establish "meritocratic democracy" in our country, where key-leadership should comprise individuals with special intellectual and scientific attainments. Therefore, objective and systematic criteria have,to be evolved to identify the gifted,who must be provided education and training suiting their genius.

Education of the Underprivileged

The educational system in the technetronic society has special responsibility in regard to society's underprivileged section, whose dignity has to be enhanced. In order to bring this section at par with the advanced sections of the society, separate courses and remedial measures are essential for satisfying their psychological needs and quest for identity. In keeping them in line with the main stream of the society lies eventual progress of the society.

Learning Society

Technetronic society is characteristically a dynamic society, where explosion of knowledge, explosion of aspiration and increasing opportunities of occupational mobility become the order of the day. As such this society has necessarily to be "a learning society". The new generation continuously looks for fresh fields and pastures new. The budding generation wishes to keep abreast with the latest know-how in order to raise its effectivences and competence in life and profession. The entry of intellectual community into socio-political life warrants that education should be a continuous lifelong process. The retraining, reorientation or refuelling of every member of the work force, elite or otherwise is a normal feature so as not to get fossilised, out-moded and antiquated. Every one must be engaged in almost continuous absorption of techniques and take periodic broadening of horizons—both mental as well as professional. Otherwise, it will not be possible either to keep up with, or absorb the new and to attain new heights.

A society geared to learning will absorb more resiliently the emerging changes in social and individual life. The provision of renewal education throughout the lifetime of the citizen will satisfy the psychological and technical needs of the renascent society. This continual broadening of philosophical and scientific horizons will bring about an integrative elite, capable of understanding essential values of scientific culture. A continuous life-long process of education will disseminate latest knowledge through frequent refresher courses, thus mobilising the talent to acquire new proficiencies.

Binary System

The educational needs of the technetronic society will be far too many and far too varied. The existing formal system of education will not be able to cope with the demand. The non-formal system, therefore, will have to supplement the efforts of the formal system. The current revolution in communication media (audio-video-aids) must be maximally availed of as most effective non-formal channel of education. Thus education will have to be binary—both formal and non-formal. So far, the formal education has remained elite, benefiting the upper and the middle class. Non-formal education will hasten educational egalitarianism in the society. It will involve the common people to shape their own destiny. Non-formal education is helpful not only at the higher range of education in India it is highly potential at the primary education stage, where the child has to earn, before he can afford to learn.

Cross-Fertilization of Knowledge and Experience

The technetronic phenomena are global. With the fast growing network of electronic means of communication (television, movie, jet travel), the world is shrinking into one unit, differentiations of men and societies notwithstanding. International cooperation and cross-fertilisation of ideas and experiences in almost every facet of life are necessary to explore new sources of food supply, to accelerate economic development, to stimulate technological growth, to fight natural calamities (earthquakes, floods, epidemics) and most important is to make our education innovative and relevant. In view of conflicting philosophical ideologies, there is perhaps greatest need of an international colloquium on "what aspect of man's life be safeguarded and promoted" as well as to understand the relevance of existing moral systems in the technetronic age.

Implicitly a world super-culture is developing, whereby India has to draw lessons from the political evolution and the social innovations of other advanced countries. Candidly speaking India, for instance, has much to learn from those countries in planning and innovation, particularly their highly advanced analytical methods of national planning, which concentrating not on economic goals only but more on clearly defining the ecological and cultural objectives.

Undoubtedly, the emergence of international intellectual elite, having some common values and aspirations, will narrow down the widening differentiations if not completely resolving them. The desirable differentiation, however, has necessarily to be there because of the wide diversities of culture and philosophy. In the technetronic age it is visualised that professional diplomacy will be replaced by intellectual leadership, by the ambassadors capable of serving as creative interpreters of the new age, willing to engage in meaningful dialogue with the host intellectual community and concerned with promoting the widest possible dissemination of available knowledge. Free dialogue and unfettered expression of disagreements can be done by the intellectuals better. They are sure to stimulate and develop scientific and technological programmes of cooperation.

In sum, science is life and to be anti-science is to be anti-life. Aristotle's fervent advice to his disciple Alexander was to rely on and befriend the men of science because they hold the key to the Universe. In the technetronic age man's propensity for scientific innovation is perpetual. The man's mind has also the awareness that idealism should be the central mode of expressing his spirit. This combination of innovation and idealism will generate a rationalistic humanistic outlook of "international consciousness", which will transcend nationalistic concerns and become interested in problems of human growth. The rationalistic humanism will enable them to rely on science as a tool for dealing with human problems in terms of man being divine in nature. This suggests the revival of religiosity of more personal non-institutional nature. Instead of the ideological flights of the mind into futuristic utopias, in the technetronic age the greater availability of means motivates the projection of attainable ends, thus compromising the relationship between "what is" and "what ought to be".

So far as the study of science and technology as well as its application is concerned, India has taken a positive and most perceptible turn. It is now on the threshold of great space experiment. Satellite technology is gradually catching roots since 1975 when the project of SITE (Satellite Instructional Technique of Education) was launched in India and progressive strides are being taken on the technological front. The recent changes and innovations transforming India augur well and allow great optimism about our society's capacity to adapt to the requirements of the technetronic age. The dynamic momentum of science will continue. The impact of science and technological thrusts is inescapable. Massive diffusion of scientific technological knowledge is *sine qua non*, provided this knowledge becomes the handmaiden of constructive change. Let us accelerate the pace of research and development so as to give meaning to the concept of liberty and equality through technological thrusts and economic prosperity. The technological age poses a Herculean challenge, which education must respond in a Herculean way.

Ecological Approach to Education

If I am asked to point out one single hiatus in our slow evolving educational model, my accusing finger will indicate "lack of ecological approach to education". By and large ours has been a policy of insulating of one configuration of education from the other configuration. For example, primary education is conceived in isolation from the secondary education and secondary education from higher education. In other words, each configuration of education is being tackled in isolated and on an *ad hoc* basis. In our country the planner only plans, researcher only enquires, manager only manages and practitioner only performs. All the four neither collaborate nor coordinate in the wider interests of developing education in an integral manner. There is thus a lack of ecological approach in our educational thinking and planning. To argue a case for ecological approach in education, understanding the concept of the science of ecology is essential.

Originally belonging to the discipline of biology, the term "ECOLOGY" coined more than hundred years back by the German scientist Ernst Haeckel is defined as "the science of relationship between organisms and their environments". For any organism, other organisms constitute the environment. Recognising that the organisms and their environments are interacting parts of a system, an ecologist uses the term "ECOSYSTEM" to mean "the community of living things and the physical environments". Ecology, therefore, studies how the organism affects its surroundings and how the surroundings affect the organism. According to Barry Commoner, "The first law of ecology is that every thing is related to every thing else". Broadly speaking, the continued effective and efficacious ecology functioning of any system depends upon interlinked functionings of its surrounding systems.

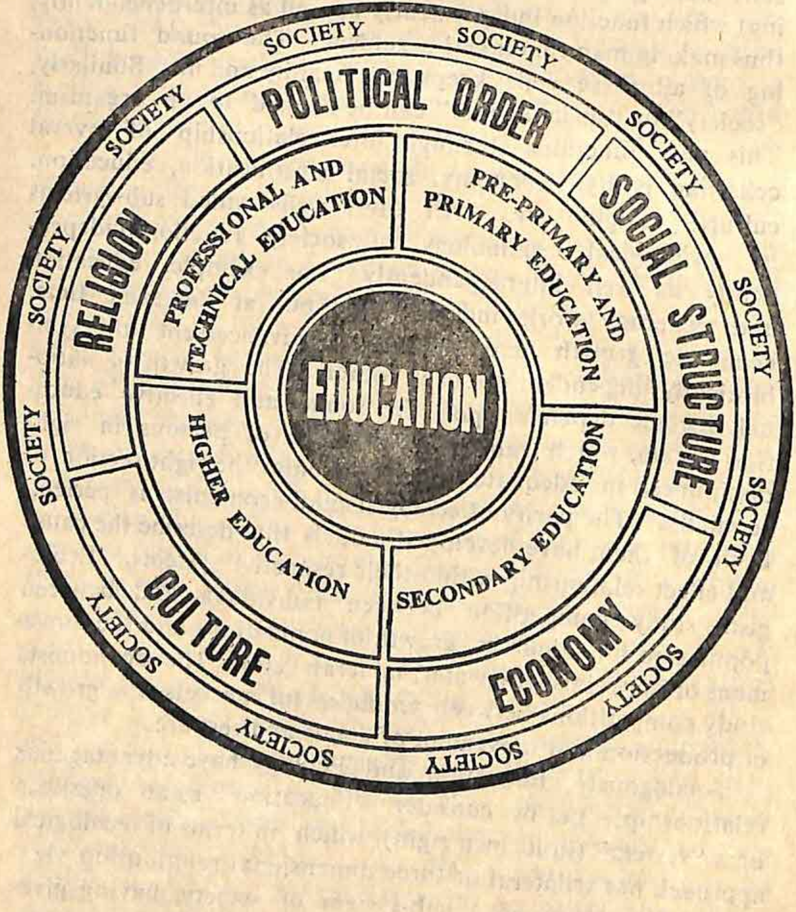
Of late, this mossy scientific term has gained swift transformation into a conspicuous "In-word" status. We meet 'ecology'—the word, if not the science—at dinner parties, in newspaper editorials, in speeches by public officials and at the gatherings of scholars. While the sciences are legitimately making its full use, the term has been welcomed in social sciences, where it is accepted to mean "inter-relationship of different configurations in a system". In 1962, the naturalist Marston Bates called "ecology an important view point of long term human survival". Garrett Hardin of the University of California has highlighted its great significance by saying that "We can never do merely one thing in a complex system to produce the desired effect". It is truism that cognate things influence each other in a system. The philosophy of "systems analysis" points out in the clearest way the virtual relevance of inter-relationship. Ecology wants coordinated perceiving, thinking and executing.

Our scientists, engineers and social scientists generally proceed by isolating and simplifying, ecology tells us to heed existent complexity. Ecological ways of perceiving and thinking will surely be beneficial in helping us to identify and cope with inadequacies that beset us. The social scientists would benefit greatly by borrowing from the ecologists their willingness to accept and try to puzzle out complexity and their habit of sustained, openeyed observation of what actually goes on. Taking ecology as a bonanza, the social scientists should examine their problems and issues afresh in terms of ecological approach so as to have the correct perspective. No system or intellectual discipline can function successfully without taking into account the inter-relationship of its various configurations. This relationship may be explained by an analogy. Man is an organism. In him there are several cells—nutritional, circulatory (heart,arteries,veins) and cells belonging to senses (sight, touch, taste, smell and hearing) which function independently as well as interdependently, thus making man functional organism. The sound functioning of all these cells keeps man healthy and fit. Similarly, "society" or "social system" can be likened to an organism. This also functions through inter-relationship of several cells like polity, economy, social stratification, education, culture, religion etc. All these cells called sub-systems in sociological terminology of society function independently as well interdependently. For example, education and economy work independently but at the same time, economic growth and educational advancement are symbiotically dependent on each other. The growth of national income depends upon the sound and effective education system, which trains the right type of persons in right disciplines, in adequate numbers to enter the right section of economy. The parity of ecologists and economists is perfect. Both of them have developed models that describe the cause and effect relationship within their respective systems. Ecologists study competition between individuals and between population for resources, growth of populations and the movement of materials (say water, minerals etc). The economists study competitions between producers for markets, the growth of production and movement of goods and resource.

Analogously, Education and Ecology have advantageous relationship. Let us consider "Education" as an organism or a "system" (in its own right), which in terms of ecological approach has trilateral or three dimensional relationship viz.

1. Education as a sub-system of society, having give-and-take relationship with other sub-systems like

ECOLOGICAL APPROACH
TO
EDUCATION



polity, national economy, culture, religion and social order.

2. Education's own immediate constituents, such as aims, curriculum, teaching-learning techniques and evaluation.
3. Education's different configurations like primary education, secondary education, adult education, higher education and technical, professional and vocational education.

Regarding inter-relationship between education and other sub-systems it may be said that every education system not only reflects the influence of other sub-systems but education itself also has vital influence on them. The political order has a potent effect not only on the organisational design of education, it also determines the aims, curriculum, character of text-books etc. The political ideology and the nature of the government determines the educational thought and practice of the country. A communistic state has complete control over education, while a democratic state believes in decentralisation and delegation of powers. Reciprocally education gives them enlightened citizenry, capable of maintaining a balance between their rights and duties.

There is intimate inter-relationship between education and national economy. Education helps economy in supplying to it the productive and creative work force, required for industrialised and technological society by training men and women capable of high performance and making full use of the capital investment. On the other hand, economy effects the teaching services, the class sizes and pruning of educational policies, programmes and procedures. The higher income nations can afford to spend a large amount on education and encourage innovative practices. A lower income nation feels satisfied in maintaining certain existing level of education. It is on account of the highly interactive role of education and economy that in the modernising and fast developing world of today "education is credited to have the greatest investment".

The give-and-take relationship of education and culture is clear. The personality of the human being is partly determined by the culture in which he grows. Education, being concerned with the growth of human being has to draw helpful material for this purpose from culture. In its turn education's task is to conserve, transmit and enrich the culture. A great and continuing purpose of education is the development of moral and spiritual values in man. No boy or girl is counted as properly educated unless he or she is made aware of the religious and moral interpretation of life. This results only from the close relationship between education and religion.

When we think of educating a man, we cannot leave out social order, social processes, the social problems and social influences under which man lives. In his development, social factors play as vital a role as the biological, psychological and philosophical factors. Education, which aims at producing such a man,builds up its (education's) nature, aims, policies and procedures in conformity with the norms and nuances of the social system. Education asks should it seek to build a better society or only perpetuate the existing pattern? If it does only the latter, how can it be called the instrument of social change and social control with a view to improving the society. Education has to take the cues and clues from the society but votes to act as a socialising force, helping the younger generation to rise to higher levels of individual and social effectiveness. It prepares the young people to cope with all the various problems of a complex society and develops them into cultured, competent and useful citizens. In the realm of education, the sociological considerations have assumed greater and greater importance with the complex growth of society. Education is a process through which society renews and perpetuates itself as society.

Taking an overall view of what has been said above, how many of us can say that the ecology of education has been borne in mind taking into consideration the inter-relationship and mutual influences of education with polity, economy and social order while planning education in India. Disregarding any one of these interacting factors means planning education in vacuum.

Similarly, the inter-relationship of education's constituents, namely aims, curriculum, teaching-learning techniques and evaluation have never been juxtaposed in the same hierarchical order. The sources of determining the educational aims and objectives should be individual needs; national goals, social aspirations, the philosophy of life of the society and the growth of knowledge, because education is expected to perform the function of furthering the knowledge, skills and values which a society considers essential for the individual. The curriculum should be so framed in a realistic and modernised manner that it completely represents the realisation of the aims. Then scientific techniques, means and devices be adopted to teach that curriculum. Lastly, reliable and valid tools and processes of evaluation be so designed that they judge the real abilities and capabilities of the learners. Unfortunately in the present educational situation the pyramid has been inverted. The evaluation or examination has come to occupy a dominant central position. Aims are formulated in a ritualistic manner, without giving concrete and specific outcomes expected in the learners. Curriculum is fragmentary, bearing not much relevance to the individuals' needs and societal requirements. The instructional techniques show the backwash effects of the examination. They are reduced to mere coaching rather than creative teaching and meaningful learning. Is there any further proof required that there is conspicuous absence of ecological approach in determining the place and nature of the essential constituents of the education process.

Coming to the third dimension of education's inter-relationship within its configurations (primary education, adult education, secondary education, university education and technical, professional and vocational education) we find that although 32 years of freedom have been thirty two years of endeavour and expansion of Indian education, yet it seems that like Alice in the Wonderland,we have been runing at one place and not moving much forward. For lack of ecological approach the imbalances, disparities, anomalies and paradoxes are legion.

Recognising a direct stake in higher education, most academics, planners and policy-makers nourish the notion that higher education is a critical ingredient in the process of economic and political development and, therefore, they advocate greater financial outlay in higher education. On the other hand, the veterans of primary education, frustrated with the slow pace and progress of primary education, which they correctly feel will generate educated citizenry, who will have greater sense of verticle and horizontal mobility—both social and occupational, greater political awareness and greater self-reliance. An illustration will clarify as to how school education, particularly primary education, is neglected, while university education gets more attention. In 1971-72,[1] six crores of children attended 2 lakhs primary schools (80,000 being single teacher schools), 74 lakhs were pursuing higher education. The number of students who obtained the first degree was a little over 6 lakhs, that is nearly one per cent of those who joined the primary schools. In respect of financing, 6 crores in primary schools, received much less than 34 lakhs in colleges, which were nearly 90 per cent subsidised both by the state and Central governments grants. In other words, the economy tilts towards higher education and is niggardly disposed towards school education, which is left with paltry funds. A fundamental question arises should we develop a few mental giants or elevate the entire nation to the minimum of primary education ? Does the situation not call for a coordinated determination to use the economic incentives and resources equitably ?

Permit me to quote another glaring example of disparity. A University[2] started in 1975 had 550 students in 1980, after having spent 6 crores in its first quinquennium. The faculty strength of 108 provided student teacher ratio at 5:1. The Centre for Human Sciences had a lecturer but no other staff and students. It has 2300 acre walled campus. Funds meant for hostel were, instead used for building the 10.70 km. long granite wall In the face of this, on the other hand 80,000 primary schools are manned by single teacher each, which means teacher-pupil ratio of 1:50 and then to teach five classes and 25 subjects. What a pity that we don't accept the condition that while literacy is every Indian's birth right, university and college education is meant for those who really benefit from such education on the basis of academic competence.

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1. Ministry of Education Report 1971-72.
2. *Today* — September 16-30, p. 90.

As a result of niggardly treatment of primary schools, they remain substandard, producing poorly literate children, a good number of whom go to secondary schools. The poor product of secondary schools enter colleges and universities which give us a vast majority of graduates and post-graduates, who because of irrelevant education are not employable and our economy is not able to sustain them.

Take another irritant of primary education. In the world of schools a sort of caste system prevails in its full vigour. A municipal primary school and a primary section of public school do not seem to be two members of the same species altogether. Why are we unmindful of this situation ? No one should take offence if I say that the planners plan separate schools for the masses and keep separate schools for their own children. Where has the idea of the "neighbourhood school", so enthusiastically floated by Kothari Commission been drowned ? Why do we forget that canons destroyed feudal lords, ink will destroy social organisation and un-cared-for schools will destroy civilization.

What a chequered history does primary education have in the post-independence India ? The target date of its universalisation, stipulated as 1961 in the Constitution, has been revised six times, first to 1966, then to 1976, again to 1981, 1984, 1985 and 1986, which again seems to be unachievable as some states talk of 2010 or even 2030 as the probable year of realising this goal. The frequent shifting of the target date shows that originally the ecology of primary education was not taken into consideration and the overall target for the country as a whole was chosen arbitrarily without recognising the constituent targets for different regions and in the same region for different places. By the by when Sir John Sargent indicated 40 years span for complete universalisation of primary education in his report on "post-war Educational Development Plan" in 1944, the idea was pooh poohed as fantastic. The Kher Committee reduced it to 16 years and the Constitution framers fixed at 10 years. However, the target of 1986 can be achieved only if strategies like multipoint entry, non-formal education and part-time education are adopted with earnestness and achievement orientation.

The ecological perspective is grossly obviated by another feature of our education system. Unfortunately in India, ELITISM is built into the system of provision. Each rupee spent on the schooling means more privileges for the few at the cost of the many. The elite is more favoured than the FOLK, while it is a stark reality that India cannot progress an inch if the 80 per cent folk are sacrificed to feather the nest of the 20 per cent elite. How grossly neglected are our rural areas and how affluent are our urban areas in the matter of educational facilities ? Despite tall talk of the universal right to education, the under-privileged are unable to exercise this right either for socio-economic reasons or by not having educational facilities close-by. The rural areas and the rural people have an exceptionally important role to play in promoting the progress and prosperity of our country. Hitherto, the benefits of socio-economic and educational development have been taken away by the articulate middle class and urban elite. The rural dwellers, engaged in farming and agro-industrial occupations have often been short-circuited in the allocation of financial resources. True, that in terms of financial resources India has spent more than Rs. 25,000 million in establishing an infrastructure in education which involves more than 180 million students in over 800000 institutions. Despite this enormous expansion of educational institutions, the country has been spending only 50 paisa per day on child education as compared to more than Rs. 20/- in the USSR, Rs. 25/- in Japan and Rs. 5/- in Malaysia and Thailand.

It is distressing that major share of financial resources have been utilised by higher education, while primary education and adult education, the two pivotal infrastructures for national development, have been thrown into the backlash. Thanks to our stars that recently the National Adult Education Programme has been launched with usual fanfare. Let us pray it clicks by giving perceptible dividends. You will not be surprised to learn that "of the total allocation of budgetary resources on education, primary education got 40.1 per cent in 1950-51, in 1955-56 it was reduced to 37.1 per cent, in

1960-61 it came down to 28.5 per cent. In 1979 it is 30 per cent". The plight of primary education can be better imagined than narrated. Looking at the present imbalances in educational development, we find that though "60 per cent of the total primary schools provided for in different Five Year Plans have been established in the rural areas, they have been denied 90 per cent of the financial resources provided to create the necessary physical facilities. No wonder that more than 70 per cent rural schools are conducting classes under trees with one school teacher. Of the total children population of 250 million, 81 per cent live in rural areas and continue to suffer from a set of socio-economic and psychological constraints".

With a view to accelerating the process of modernisation, assuring equality and equitability in education to all and sundry and for bringing about the behavioural and attitudinal changes of millions of people, a radical re-thinking in educational priorities is imperative. It is only through ecological approach to educational planning and execution that we can achieve an appreciable rate of growth and social change. As a consequence of lack of ecological approach to education, one configuration or the other suffers. Rather, what the government accomplishes with one hand, it demolishes with the other hand. The sectoral and inter-state and intra-state imbalances, disparities, anomalies and paradoxes are sources of great social and psychological tensions. The ecological approach will not only redress the grievences of the sufferers but will also profit the beneficiaries. Sooner we remedy the situation through ecological strategies nearer will be the millennium in education.

Epilogue—Tomorrows Needs and Beacons of Hope

Since the dawn of independence, our cardinal quests in education have been "quantity", "quality" and "equality." Have the phenomenal quantitative expansion, sustained efforts for improving the quality and our striving for equality made any impact on socio-economic changes in India?

Change has Come

Being an optimist, I must say that the change has come. The rapid expansion and steadfast efforts for equalisation of educational opportunities have brought children from a much wider catchment area into schools. That reflects the changing mood of the Indian society, which is becoming more alive and vital. The old rhythm of life has gone. The industrial and mechanised civilization has come to stay. It is heading towards technetronic society, realising that science and technology is the only way to get rid of the curse of poverty and to ensure higher standards of living. Even our spiritualists are persuaded or to believe that good measure of material well-being is essential for our spiritual progress.

The last three decades have witnessed a positive and perceptive change in all walks of life. We have every reason to be proud of the change both absolute and relative, in all branches of national activity. The large development of industry, our increasing self-reliance in all fields of scientific and technical know-how and our underground experiment of explosion in 1974 making us one of the six nuclear nations in the world bear eloquent testimony of our immense progress in science and technology education. The commendable standards of our agricultural education created a large stock of agricultural scientists, who brought about Green Revolution in our country. The Indian scientists and technologists now rank with the best in the world. In our economic strength we are among the first dozen nations.

Education no longer Will - o'-the-wisp

Comparing the profile of education in 1979 with its profile in 1947, it can be categorically stated that education in India is no longer Will-o'-the wisp. It has grown in size and substance. Quantitatively it has taken phenomenal strides and discernible innovations reflect the 'will' to improve the quality. Almost every village has a primary school. Enrolments were constantly rising 700 lakhs (82 per cent) in 6-11 age-group and 177 lakhs (37 per cent) in the age-group 11-14 were in schools. In 41298 secondary schools the enrolment was 93 lakhs. Against 19 universities in 1947, there were 105 universities and 10 institutions deemed-to-be univerisities in 1977, while 4610 colleges had a population of

35.65 lakhs students. The engineering education, which lacked both quantity and quality in 1947 expanded and improved tremendously though a national netwokr, beginning with the Industrial Training Institutes and ending with the regional engineering colleges and Indian Institutes of Technology at the top. As many as 65 institutes offered post-graduate and research facilities. Two dozen Agricultural Universities and 100 agricultural colleges catered to the needs of agricultural education. For medical education, there were more than 100 medical colleges with an annual admission capacity of 12500. Post-graduate teaching and research in medicine expanded considerably. In terms of financial resources all the Five Plans (1951, 1956, 1961, 1969 and 1974) made progressively upward provision for education, viz Rs. (crores) 153, 273, 589, 786 and 912. In terms of financial resources, we have spent more than Rs. 25,000 million, which currently involves more than 180 million students in over 800,000 institutions.

Sectors of Education

The effects of the shift is reflected in the current educational thought and practice in the planning and administration of education, innovation in the content and methodology of the curriculum, in the design and equipment of schools and colleges and in the application of technology to learning and teaching situations. For example, the extraordinary phenomena, now becoming more and more visible in formal education are—focus on vocational and technical education, foundation courses, applicational component of courses, precise tests and measurement techniques.

Our 33 years of freedom have been 33 years of educational endeavour. Our dominant anxiety now is that the planned development of education should be related to our skilled manpower needs. Whereas our initial emphasis was largely placed upon the quantitative expansion of the provisions, currently our concern has moved more towards the issues of quality by applying scientific technology to teaching and learning. Sound and television broadcasting as ancillary aid to learning is now seen to have much wider possibilities of coverage through the use of SITE. The new knowledge from psychological research has shifted the emphasis from the concept of the "teacher as an imparter of knowledge to the teacher as a creator of learning situations". The corollary to this is that the pupil is a positive learner with the emphasis upon 'learning by self-effort'. The incorporation of educational sociology in teacher education programmes are changing the teaching-learning procedures and processes. Even at the university and college level, there is growing appreciation of the need for university and college teachers to receive professional training. This new trend is reflected in the use of the term 'teacher education' in place of 'teacher training'.

Long way Covered, long way to go

Although our overall achievement in education in free India are not commensurate with the raised hopes and aspirations of the nation and many of the basic educational objectives of our socialistic society still remain a vision, yet we do not say that we have been static. We have covered many a mile-stone. Nevertheless, we have still a long way to go. Our growth has been lopsided. To be sure there are pockets of innovaton as well as of retardation. The credibility of our education is seriously threatened by irrelevance. It suffers from several constraints internal and external problems and paradoxes. Internally it is fractured along lines of discipline and academic disquiet. The students are angry and irreconcilable, drawing no line and limit to their pressurising of demands genuine and spurious. Externally politico-economic pressures deface the identity and violate the autonomy of the university. Again the sectional and regional imbalances in education create tensions.

Somehow we have developed a craze for foreign models. The schemes and blueprints are bodily lifted from the so-accepted advanced countries and faithfully planted on Indian soil, little realising that the conditions there and the conditions here are radically different. The Delhi administration experimenting with Russian Project or UNESCO project of teaching mathematics and science is one example. To quote another instance, let me refer to a news, which appeared in the press, member of the House of Commons in Britain asked as to why Nuffield set of science text books was being printed whereas the same had been declared obsolete and out-of-date. It was disclosed that those books were wanted by Delhi Administration. Understandably our Indian educationists who are generally foreign-bred, however well intentioned they may be, in their total innocence about Indian genius and social needs have never sought to develop an Indian model.

Ivan Illich's warning need be heeded ? "If Third World countries play the game whose rules are written by first world countries (institutional provision, professionalisation, bureaucratisation and high technology) they are bound to go on loosing" (Ian Lister p. 11). Do we feel like Alice in the Wonderland "have been running at one place not moving forward"? Certainly not. Our failures are due to symptomatic lopsided priorities, lack of political will, lack of ecological approach to education and lack of conscientisation that we are living in a technetronic age. We should revise the scale of priorities and planning to meet the short range and long range aims of education.

Our approach to education has all along been in an adhoc and piece-meal fashion and not "in totality". We never provided education with the large financial resources it should have. We never put into education all that immense effort, which it always needs. We never try to mobilise the community as a whole to support the expansion and improvement of education. We start a scheme with ceremonious invocation but soon they die unsung and unwept.

TOMORROW'S NEEDS

An educational explosion is under way in India. Tomorrow's needs are bold and clear. The generation now in schools will spend its adult years in a society that will be radically different from today's society as we are from what we were in 1947. Given the conditions of technetronic society, we must go forward. In order that the technetronic man may not put his education to evil use, continuous thinking about education is imperative. The social content of education needs to be constantly revamped so as to develop values dictated by our national goals.

It is true our educational ills are related to the political, social and cultural milieu but then what has education contributed if it has not risen above these to change the milieu rather than be handmaid to it. We must build our educational model so perfect and efficient that it becomes impervious to pressures of all kinds. Education requires human effort, which we have never mobilised to the optimum level. Instead of star-gazing, we should have attainable objectives. Why view things from the higher perch and ignore the stark realities of Indian situation.

Many of the changes transforming our society augur well for the future and manifest, atleast, some optimism about society's capacity to adapt to the requirements of the technetronic society, The new interest in education has raised fresh problems. The rapidity of change has brought in new forces, which affect education. We need, therefore, careful study, analysis and evaluation of these forces, if we wish them to be helpful in achieving long-sought-for goals of functionalising education to develop intelligent and enlightened citizens.

The contemporary India is more critical as well as more demanding. This is natural in a renaisent nation like ours. In the realisation of socialistic ideals we are not living upto the pledges enshrined in our constitution, because of the tendency of putting party before country, community before region, caste before humanism. "Our politicians are more interested in finding short cues to popularity than serving the people. Politics for them is a means of self-aggrandisement rather than a sacred mission for service". The massive exercises done in pin-pointing society's failures, devastating critiques of nations' short comings and elaborate afforts at social stock-taking should now lead to sober national action for well conceived planning and execution. This is the task for all, more of intellectuals and no less of others. This pervasive awareness among the leading sections of the society should provide deliberate response to the challenges of the time. Through sophisticated educational planning alone the country can achieve an appreciable rate of economic growth and social change. Since education forms as vital a part of the country's infrastructures as food, defence and power, it must be given top priority in our plans if far-reaching transformation in society is to be brought about. The ground covered so far should serve as a spur to make further endeavour. Instead of brooding over the problems, let us evolve action-points and implement them with sincerity and devotion, as is being done in the Vellor Medical college, where not only the doctors are dedicated but the nurses, the laboratory technicians, the Canteen servers and in fact every one connected with hospital seems to be moved by some sense of service and some pride of achievement.

In technetronic society there may be a room for pragmatic idealism but hardly for indoctrinal utopianism. India is in the midst of transition from exclusive agricultural to agro-industrial and technetronic society. The political will, the increased sensitiveness to social need will click. This is the TOMORROW, which I aspire to see. Taking the u-turn and revamping of educational system pre-supposes huge resources and attitudinal change, both of which I hope will come in a big way. It is hoped that the analysis presented here will help indicate the directions in which educational reconstruction should move to identify itself with the requirements of the technetronic age.

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Professor V.R. Taneja, former Dean, Faculty of Education, Jammu University and earlier professor and Head, Department of Education, Panjab University, Chandigarh, is a well known figure in the fraternity belonging to the discipline of education. After his gold-medallist academic career in India, he won his Research Degree in Education with distinction from the University of London.

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With a view to studying the educational profile of socialistic countries, he visited some universities in Yugoslavia. For a year he was a visiting Professor in the Asia Pacific Regional Centre of Advanced Studies.

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Indu Dave did her M. Ed. from University of Georgia, Athens, Georgia, and has had wide experience in teaching education.

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V.R. Taneja got his Research Degree in Education from the University of London. He was former Dean, Faculty of Education, Jammu University, Jammu.

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